

# COOP'S SATELLITE DIGEST



AUGUST 1983



*Time to upgrade . . . ?*



*Satellite Receivers for All Your Needs*

**NEW!**

**Toll-free OrderLine 800-446-2500** (Orders Only!)

**AVCOM®** 500 Research Road • Richmond, VA 23236 • 804-794-2500

TOP OF THE MONTH

**PIRATING.** We are, as an industry, often accused of being 'pirates.' That issue gets a hard look this month, with the perhaps unnerving realization that unauthorized motel/hotel/apartment house systems may now number more than 10,000 nationwide; serving perhaps 1,000,000 clearly illegal viewing locations. Pirating is a cancer eating away our own good intentions; report begins on page 22.

**F3R.** Further east, with better quality reception, than previously reported. A South American pioneer, from Guyana, gives us a first hand report on life in the rain forest jungles with WGN et al on the screen.

**CAN/AM '83.** A show drawing mixed reviews and mixed results. The piracy issue was a theme that drove the show as Canadians descended on American TVRO technology in unprecedented numbers.

**EQUIPMENT** warranty/insurance. Several programs are being offered and there are pluses and minuses to each. A hard look in Coop's Comments, here this month.

**FCC** studies of transponder 'loading' effect long range planning for future satellites. A look at how this works, also this month.

**AND,** the Sri Lanka 'expedition' shapes up in final form; Arthur C. Clarke is waiting, along with officials of the Indian Ocean nation, for the delegation from North America; an update in Coop's Comments.

AUGUST 1983

COOP'S COMMENTS .....	page 4
F3R IN GUYANA (A.J. VIERA) .....	page 8
FCC TRANSPONDER LOADING STUDY .....	page 11



PIRACY/ A Cancer Gnawing Away at The Industry .....	page 22
CAN-AM 83/ Memorable, Confusing .....	page 31
THE ROOTS OF TVRO (Part Eight) .....	page 38
CORRESPONDENCE .....	page 44
BIRD OPERATIONAL NOTES .....	page 58



**OUR COVER —** Guy Davis (Intersat; left), Bill Young (Interland Insurance; center) and Larry James (Patmar; right) at CAN/AM '83 discussing the pitfalls of an international, industry-wide extended-warranty/all perils insurance program for the TVRO (home) consumer. See mini-report within **Coop's Comments**, page 66 this issue.

COOP'S  
SATELLITE  
DIGEST



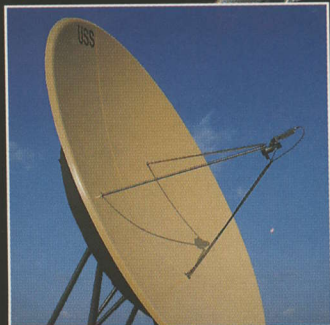
**COOP'S SATELLITE DIGEST** published monthly by West Indies Video, Ltd; a Turks & Caicos Corporation with corporate offices located at Grace Bay, Providenciales, Turks & Caicos Islands (West Indies). U.S. offices are maintained at Ft. Lauderdale, Florida. All mail including subscriptions, advertising inquiries, reports and letters should be addressed to CSD, P.O. Box 100858, Ft. Lauderdale, FL 33310. CSD office hours in Ft. Lauderdale are Monday-Friday 9:00 AM to 4:00 PM. Telephone (305) 771-0505. CSD is mailed worldwide on or before the 1st of each month, first-class (airmail). Annual subscription rates are \$50 (US funds) for USA, Canada, Mexico; \$75 (US funds) elsewhere. Entire contents copyright 1983 by West Indies Video, Ltd; Robert B., Susan T., Kevin P., and Tasha A. Cooper.

# Track Through The New **USS** SR-1 System

## Better By Design

For years, dealers have searched for quality satellite television reception in an attractive package that's EASY to sell and install. Now, United Satellite Systems has the answer. It's a second-to-none, totally integrated electronics package that even includes a remote-control unit that can be used in any room in the house.

The **USS Antenna** is a commercial quality, prime-focus design parabolic reflector that was tested and proven superior at an independent microwave antenna test facility.



Track it through. See for yourself that USS has put it all together for superior quality earth-station viewing.

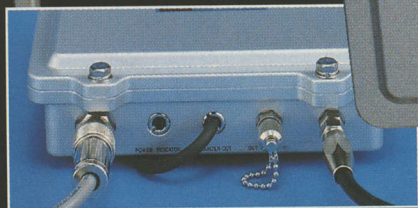


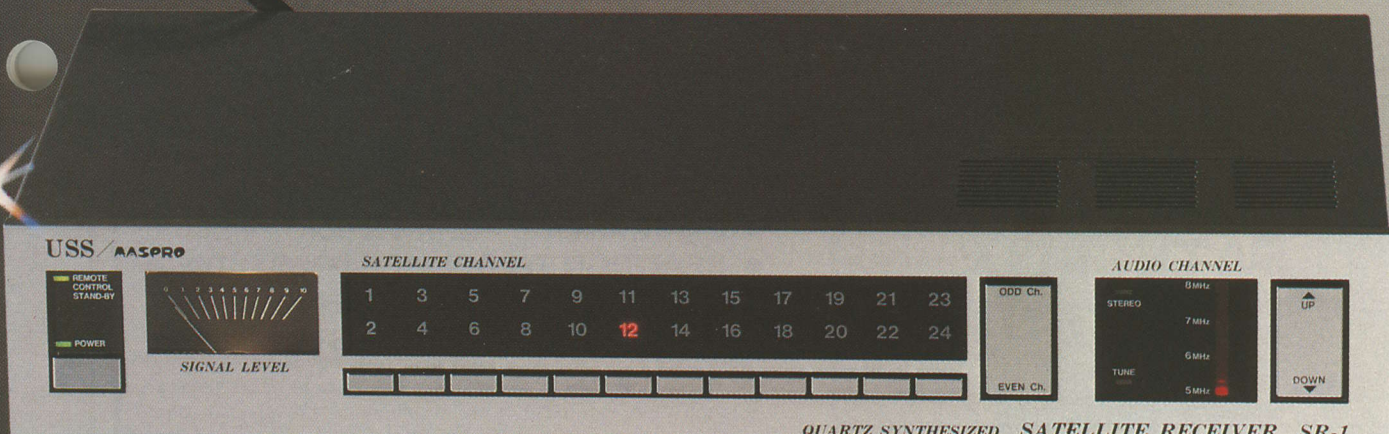
The **USS LNC**, using the latest GaAsFET technology, amplifies the signal, tunes the transponder, and down converts from 4 Ghz. to 1.2 Ghz.

The **USS SR-1 System**™ interconnects with a single coaxial cable. For easy installation, we have multiplexed onto one coax cable the IF signal, tuning voltage, and three-wire polarity control, eliminating all excess wires.



The **USS Second Down Converter** converts the signal from 1.2Ghz. to 70 Mhz. It contains the power supply, polarity interface, pilot light and antenna "peaking" test point. It's in a rugged die-cast aluminum, weather-proof, O-ring sealed housing.





QUARTZ SYNTHESIZED SATELLITE RECEIVER SR-1

The USS SR-1 Receiver has a soft-touch, push-button, quartz-synthesized encoder for instant channel selection, with no fine tuning needed. The automatic audio tuner allows rapid scanning of all active audio subcarriers from 5 Mhz. to 8 Mhz.

Automatic polarity switching is instantaneous with a push of the button. SAW filter technology is incorporated into both the receiver and modulator. The integral modulator is available on channels three through six.



The USS CRC-1 Remote Control has all the front panel functions of the receiver and, using "PLC" technology, permits the viewer to control the receiver from any location in the house by plugging into the nearest 110 VAC wall outlet.



And it's all in one package. The USS SR-1 System™ includes the LNC coax with connectors, the polarity cord and even 120 feet of cable with connectors for the run into the house. It hooks up quickly; no need to buy additional enclosures, extra wiring or weather-proofing. No special tools required. USS delivers easy installation and trouble-free performance for you... a user friendly system and high-quality reception for your customer... And it looks good too. A leading publication called it "the most elegantly finished receiver on the market."

Want to know more about the best package?

Call TOLL-FREE

**1-800-328-7733** or, in Minnesota, call (218) 681-5616 for a free brochure. Or contact the USS master distributor in your local region.

**UNITED SATELLITE SYSTEMS**   
**Better By Design**

St. Hilaire, MN 56754

Starview of Texas  
 15304 Midway Road  
 Dallas, Texas 75234  
 (214) 934-9126  
 Recreational Sports, Inc.  
 2200 N. Woodruff Ave.  
 Idaho Falls, Idaho 83401  
 (208) 523-5721

Micro Exports of Miami  
 7880 Southwest 180th Terrace  
 Miami, Florida 33157  
 (305) 255-4225  
 Kittelvision  
 5665 Redwood Drive  
 Rohnert Park, CA 94928  
 (707) 585-3214

Idlers, Inc.  
 3428 Bullock Lane  
 San Luis Obispo, CA 93401  
 (805) 543-1711  
 Radonics Electronics, Inc.  
 4445 Gustine  
 St. Louis, MO 63116  
 (314) 481-2222

Master Distributor Eastern Canada  
 PPD Industries  
 351 Steelcase Road, West  
 Markham, Ontario L3R-3W1  
 (416) 477-0022  
 Johnson Enterprises  
 Courtenay, ND 58426  
 (701) 435-2321

## COOP'S SATELLITE COMMENT

- INSURANCE/ Fact or Fiction???
- REACTION TO RELIABILITY STUDIES
- LEARNING TO DEAL WITH AN IMPERFECT INDUSTRY

### NOT Boring

I think someplace in the Ten Commandments of being a part of the Space Board of Directors there is a covenant about not spilling the beans outside the meeting room. I know that **SatGuide's** Wolford must feel a little ticked off now and again when he has to be handed SPACE press releases for a report on Board activities while I have the distinction of being on the Board where it all happens. Perhaps when we take our oath of office we even swear not to reveal what goes on inside the Board meetings; I can't recall. However, the Minneapolis June 23rd meeting of the Space Board was so productive, and so wild that I cannot resist the urge to share some of it with you. If that gets me dis-qualified from serving for another term, so be it.

The meeting was held at a hotel across the street from the CAN/AM '83 Radisson South. That was not by choice; STTI's Schneringer had denied SPACE access to the Radisson for any purpose. We'll come back to that subject before we finish. I managed to locate the meeting only because I ran into Andy and Pat Hatfield in the lobby of the Radisson and Pat, as always, had the route all figured out for Andy. Bless Pat.

Several 'hot' items were on the agenda. Money was at the root of such board agenda items as 'Marketing SPACE', 'Conventions' and 'Scrambling/Refusals To Deal'. I had made up my mind that if we could we should figure out some new ways to attract the ultimate TVRO beneficiary, the home TVRO owner, into SPACE. It made no sense to me that we were spending tens of thousands of bucks per month to protect their viewing rights and they couldn't even spell SPACE. I know. We have to do this for them if we want to keep shipping our equipment to them month in and month out. but it still bothered me that they were sitting out there fat, dumb and happy watching their 60 channels of television while we were squabbling over 50 cent levies on motor drives and \$2 contributions trying to raise the money to keep the industry legal in the eyes of Washington.

The 'Marketing SPACE' agenda item wasn't going very far. The discussions revolved around stuffing SPACE brochures in antenna controller boxes, trying to con Wolford out of a full page ad in **SatGuide** and other not very productive approaches. So I made a motion. I suggested that we quit trying to get something important like this done with haphazard, amateurish and uncoordinated efforts. I moved that we appropriate \$10,000 of SPACE money to hire a really first class direct mail promotion firm and that we ask them to test market for us various professional attempts to get TVRO owners involved in SPACE.

The item that keyed me off on this was a confidential report on the current membership breakdown of SPACE: by categories, the number of Dealer Members, Private Cable Members, Individual Members and so on. When I noticed that the sum of all of this was around 1/4th the paid subscription list to **CSD**, and we don't even sell to the consumers, I knew something very basic was wrong here.

After some discussion the Board voted to spend the \$10,000 to get first class professional people with lots of smarts in direct mail promotion involved in reaching these 100,000 or 200,000 (you select the number you like best) private, home TVRO owners. Most of the Board agreed that such a mailing test could utilize their warranty registration card files to develop a mailing list; I suggested that **SatGuide** would probably be willing to allow a portion of their list to also be used (that's alright David; you don't need to thank me), and that **Satellite TV Week**

was another possible list holder. Since the people we really want to reach are those who own a TVRO, STTI's purported 70,000 name list didn't come up for consideration as it is not a 'qualified list' of users.

Then we had to find someone to represent the Board in this activity; somebody who has a carefully honed marketing man and who understands how direct marketing promotions work. We didn't want to turn some group loose with our ten grand and not monitor their approach and progress. Nobody volunteered and I was glad because I had a Board member in mind. I suggested Janeil's **Bob Dushane**. After a pregnant pause, and Dushane's agreement that he could handle this task, we voted unanimously to get Dushane and the project underway and passed on to the next item.

Getting home TVRO owners involved in SPACE, to support their own interests, is a key element in getting out of the back pocket of the manufacturers who are carrying 80% of the SPACE load. I was not the only one bothered by this at the Board meeting, as we shall see.

The conversation drifted in its typical unstructured format after this and pretty soon we found ourselves talking about running the SPACE office. President Behar mentioned that he felt, after ten months or so in office, that we were demanding a great deal of Counsel Brown to ask him to be responsible for raising funds, collecting funds, doing our legal battles for us, representing us at various meetings, and keeping us all in line. Somebody on the board commented that the arrangement, while perhaps cost effective, had the earmarks of being 'in conflict'. The guy most responsible for getting money in turned out, through the law firm, to be the guy that ended up receiving most of the funds. Brown said he didn't want to continue doing it that way. That moved Taylor Howard and I to suggest that we grow up as a trade association; hire a good Chief Executive Officer and allow Brown and Finn (the law firm) to concentrate on protecting our rear ends. To my surprise, everyone seemed to agree that taking Brown out of the dollar loop was a great idea. Taylor and I had tried the same suggestion a year prior and had gotten no place with it. Every great idea has its time.

So to my wonderment the Board approved unanimously a motion brought forth by Taylor H. that SPACE allocate \$50,000 in salary expenses and some to-be-determined amount in operating expenses to the creation of a CEO for the trade association. Taylor, Bob Behar and I formed a committee with Board approval to go into the job market to locate and interview some prospective folks for this position. We hope to have a few candidates ready for presentation to the next Board meeting, in Orlando in November.

Since the combination of these two moves may sound like the Board has gone crazy spending money we don't have, a little bit about the rationale behind all of this is in order.

The industry has clearly outgrown its own internal funding abilities. We cannot continue to match the growth of our adversaries with the bucks we are capable of generating from the 'traditional' sources. We are no longer a 'mom and pop' business. Just take a careful look at the quality of the advertisements in **CSD** and then go back a year ago and look at the graphics in the 12 month old advertisements. No comparison. The graphic or layout quality of the ads points up that we have matured rapidly.

The best, untapped, reservoir of dollars available is the TVRO users. I don't care whose hyped numbers you subscribe to, we are an industry presently shipping and installing from 12,000 to 20,000 new home terminals per month. If you take the lower of the two numbers,

the 12 month growth rate through July of 1984 would be an additional 144,000 home units. The larger of the two numbers suggests 240,000 new terminal owners over 12 months. Either is clearly the big time.

**Maybe SPACE has made a mistake** asking for \$35 per home TVRO owner for individual membership. Maybe the fee ought to be lower; say \$15 per year. Wouldn't we be smarter to have 50% of the new home system owners at \$15 then we would to hold the line at \$35 and have just a token representation? To save you the effort, 50% of 144,000 times \$15 is \$1,080,000 per year. Or 50% of 240,000 times \$15 is \$1,800,000 per year. The later number comes close to what the big, prestigious, National Cable Television Association (NCTA) takes in (and spends) per year. Not quite as much, but close. And this group gets pretty much of what they want, in Washington and across the country, because they have the bucks to make their work produce results.

That's why I was intent on getting some professional people involved in 'test marketing' of SPACE. We have something of value, and virtually nobody is buying it. That's alright; none of the 'prospects' even know it is available.

When Taylor got the Board's attention on hiring a professional 'manager' for SPACE, that seemed to me to be the last big, missing part to the puzzle. With a half-way decent guy spending ten to twelve hours per day representing SPACE in the commercial forum, concentrating on raising funds, getting our word(s) out and enhancing our image, we'd at last have the tools to move out of the minor leagues and into the big time.

**I suggested that the new CEO's number one duty should be fund raising.** To get us so many dollars in the till that we could handle any attack. His next big duty was to lend an air of professionalism to the industry. No more of those overt attacks on the industry by **ABC World News Tonight**; this guy would be out there daily talking to the U.S. Chamber of Commerce BizNet group, Ted Turner, the Custom's people (see **CSD** for July), and major industrial groups. We need to be recognized as a **coherent, intelligent, industry**. Our image at the present time is someplace between the hills of Arkansas (that's no slam to Arkansas, even if it is the 'Japan' of home TVROs!) and the soft shoe routine of Hollywood. We don't **all** need to dress up in business suits but our T shirts ought to at least have collars.

Yeh, I know. 50 grand is big bucks. Keep in mind that MPAA's Jack Valenti is paid well over 200 big ones a year for what he does, and you can see that we aren't going to hire a talented person for \$2,000 a month. Most of the Board felt that a really good person, the first CEO of our industry's trade association, would bring in so much 'new money' that the 50 would be just seed money to get the industry really whipped into shape. At least two of the Board members present said **they would personally subsidize the new CEO's salary if SPACE found itself having to scrimp to make the CEO plan work.** That's how important these fellows thought this growth phase of the trade association was.

Oh yes. Tay, Bob and I asked the Board for their guidelines for locating some prospects for this position. After discussion, the decision may surprise you. **"We would prefer to find a professional trade association manager who is not familiar with TVROs.** It would be best to go outside the industry to fill this position." Think about it. It's the right way to go.

The next item on the agenda was trade shows and conventions. But before we got off on that, **Jim Rothbarth** of STS asked for the floor. Jim is one of the quieter CEOs in the industry. If you wanted to fault Jim, it would be that he seldom says exactly what he has on his mind. Sometimes you have to listen to what he says and then figure out what he meant. Not in Minneapolis. Jim came through loud and clear.

**Jim felt there were two nagging problems at SPACE.** One was the uneven way that the legal battle to force HBO et al to sell service to private terminals was being funded. Jim made the point that **"no one has put more money into this industry's problems than me"**. He was right. Jim created the concept of the 'Pioneers' and he pushed and shoved at the industry's leaders to make it work. Pioneers, for the unwary, are that group of 36 or so who put relative big dollars into SPACE every month just to maintain the legal equilibrium we need to stay alive as an industry. Jim told the board just how incensed he was that out of perhaps 100 substantial manufacturers and distributors,



**SMOKE FILLED ROOM/ Rothbarth holds the floor (standing) and the attention of SPACE board and Pioneers.**

only 36 were supporting the SPACE efforts at the 'Pioneer' level. **"There aren't words to describe what a bad situation this is . . ."**. Well, Jim found the words and nobody escaped his wrath. At least no-one who was not carrying an equal or fair-share load of the legal costs. Jim's principal problem, other than a lack of total industry wide support for SPACE and the industry's legal problems, was that the anti-trust suit funds (which now amount to some healthy six figure dollars) were being administered by the Board. Yet the funds were being raised by an ad-hoc group **outside of the board proper**. Jim wondered how various members of the board, not themselves contributing to the anti-trust suit funding, could fairly determine how those funds should be spent. The question was not directly resolved.

Then Rothbarth moved onto the subject of 'shows'. He echoed the sentiment that the industry was being forced to attend too many shows per year. He would later point out that his firm (they import the Luxor receiver) was simply not going to attend more than perhaps a couple of shows per year. Indeed, they were not at Can/Am '83. The contention was of course the industry split between the SPACE shows and the STTI shows. Yozo Satoda of Dexcel put it very succinctly. **"I feel I have a wife and a mistress. With one I have a legal commitment to support; but the other is very attractive and I want to support that one also"**. Many of the manufacturers present obviously felt the same way and STTI's **Rick Schneringer**, a SPACE Pioneer member, was on hand for the discussion. The primary concern was that both STTI and SPACE had announced shows in Las Vegas this coming March. Nobody seemed to have a good handle on which one announced first and allegations flew over that issue. SPACE had voted to hold a spring of '84 show in Las Vegas during the March ('83) board meeting. Schneringer claimed he had already announced in public that his STTI trade show would be back in Vegas the same month. Schneringer accused SPACE's Behar of trying to get the Riviera Hotel to cancel Schneringer in favor of SPACE. Behar retaliated with the suggestion that Schneringer was on the telephone daily making dishonest remarks about SPACE, and slandering Behar's Cuban heritage and Brown's religious beliefs. From that point it went down hill in a hurry.

Taylor Howard to the rescue. **"Why can't we combine the two shows, in Vegas, this coming March? Perhaps SPACE and STTI could combine their talents and efforts and put on one really 'super show' In Vegas."** There was a murmur of approval.

I then asked Rick Schneringer how he would feel about doing such a thing since he was quite silent at this point. He thought it might work, but suggested that if it was going to work, the SPACE part would have to be handled by some representative other than Behar and Brown. Schneringer was not going to find working with either of these industry leaders 'comfortable'. I then suggested that long before such a show got into high gear, we'd have a new SPACE CEO on board and that would be one of his functions; to run the SPACE shows. Schneringer

# Nobody Does It Better.

Owning a satellite television system opens up a whole new world of entertainment and educational opportunities for your family. Satellite television means more great Movies, Sports, Specials, Childrens Programs, News, Weather, Business, Education and Adult Programs than you can imagine. Examine a satellite TV program and you'll see what we mean.

The design of our new 2.8 meter model is based on the same proven engineering concepts as our original 3.8 meter antenna. We've refined the shape of the ribs and changed the hub to achieve greater structural integrity and less weight. Our welded Rib & Ring truss system shapes the expanded aluminum mesh into a true parabolic shape. Because wind resistance through the mesh is so much less than a solid dish, and the heat dissipation far greater, a Paraclipse system will remain true in the worst environments. Our ingenious polar mount allows you to change satellites in seconds, simply and accurately.

With the recently enacted  $2^\circ$  satellite spacing, our  $2.1^\circ$  beam width will give clear, sparkle-free reception while less accurate antennas will become obsolete.


When you shop for a satellite television antenna, take a close look at the equipment and ask lots of questions. Keep in mind that the soonest you'll know the true cost of any system is after you've seen the end of it's service life. Try to separate the facts from the promises and go with a reputable manufacturer.

Only after you know something about the various solutions will you be able to make an intelligent choice about them.

© Copyright 1983 Paradigm Mfg.

## Paraclipse 2.8 meter

# Your Picture Window to the World



The Paraclipse High Performance Satellite Television System will bring the world into your living room. Imagine the possibilities. Paraclipse gives you access to any television signal broadcast to North America via satellite. All the best channels will be yours to enjoy; Movies, Sports, News, Weather, Education, Music and Network programs.

The Paraclipse is available in custom colors. The welded aluminum-alloy frame is strong, lightweight and easy to handle. The parabolic dish is constructed of heavy-duty expanded aluminum radar mesh. The Paraclipse captures all the available signal while it greatly reduces wind and weather resistance. As powerful as it is beautiful, the Paraclipse is designed to give you years of trouble-free service.

**Paradigm Manufacturing, Inc.**  
6911 Eastside Road  
Redding, California 96001  
(916) 244-9300

©Copyright 1982, Paradigm Manufacturing, Inc.

## GUYANA UPDATE

In the February (1983) issue of **CSD** there appeared a report on my initial efforts to produce satellite television pictures here on the northern coast of South America, some 400 miles southeast of Trinidad and Tobago, at approximately 7 degrees north and 58 degrees west. Readers may recall that the antenna pressed into service was originally designed, in its 33 foot configuration, for terrestrial 900 MHz forward scatter (as in long haul telephone) circuits. The surface was not good, when the dish was acquired, as a reflector at 4 GHz and the rib tolerance undoubtedly leaves much to be desired at 4 GHz since the dish was never intended for service at this high a frequency.

Nonetheless the big dish, on a home built mount, has now proven itself and judging from results I have seen in Barbados, for example, with some commercial quality 20 foot antennas, it would appear that the effective area of this dish is in the same 20 foot region.

In the February report the big dish had not, at that time, been moved west to F3R since we had stumbled across several of the higher look angle satellites (F4 first, then W4) before we got that far west. The calculated look angle to F3R is pushing the extremes of virtually any dish and surface; barely 8 degrees here. Still, one never knows until one tries something so with some trepidation the dish was pushed and shoved along the belt to the location of F3R here.

This is an update report on the service found at this location from F3R. With the possible exception of a system anomaly relating to the feedhorn I am using, I believe the results are additional verification of many of the previously reported characteristics of F3R noted here in **CSD** by others.

The photos accompanying this report, of the reception, are second generation video. The video was recorded on a Beta tape and sent to **CSD** along with this report; Coop in turn photographed the reception on his WIV monitors. Therefore slightly better video does exist in Guyana proper since there is some degradation from the Beta taping and subsequent photographing of the results.

The table accompanying this report lists the respective signal levels measured on my AVCOM receiver. This is a COM 3 dual conversion receiver, equipped with an LNA that is specified at 87 degrees K. For purposes of this report and my own record keeping, the COM 3 signal level meter was adjusted so that it read 'down scale', or 'on scale,' for all of the signal levels. Remember that the COM 3 (as with other AVCOM receivers) has an adjustable 'meter sensitivity' control so you can make the meter read anything you wish. It is a relative indication only, but once set and left alone, it provides an excellent reference tool for checking the stability of the received signals, and, the relative difference between the received signals.

Some discussion of the meter readings is warranted. First of all, it has become apparent to me that possibly my feed antenna (from Space Coast Research), or, my LNA, has a 'high-end roll off' problem.

by  
A.J. Viera  
Versailles Estate  
West Bank  
Demerara  
(Guyana)

## PUSHING F3R FOOTPRINTS EAST



AUTHOR A. J. Viera in Guyana.

That means, if my analysis is correct, that the feed is not handling the high end of the band (transponders 20 or so upwards) with the same efficiency as the lower portion(s) of the band. While it is possible for the LNA to be exhibiting the same characteristics, in this instance I lean towards the feed being the problem. This gradual drop off in signal level, and as the selected photos show, the picture quality as well, is the result of this (to be corrected) system anomaly.

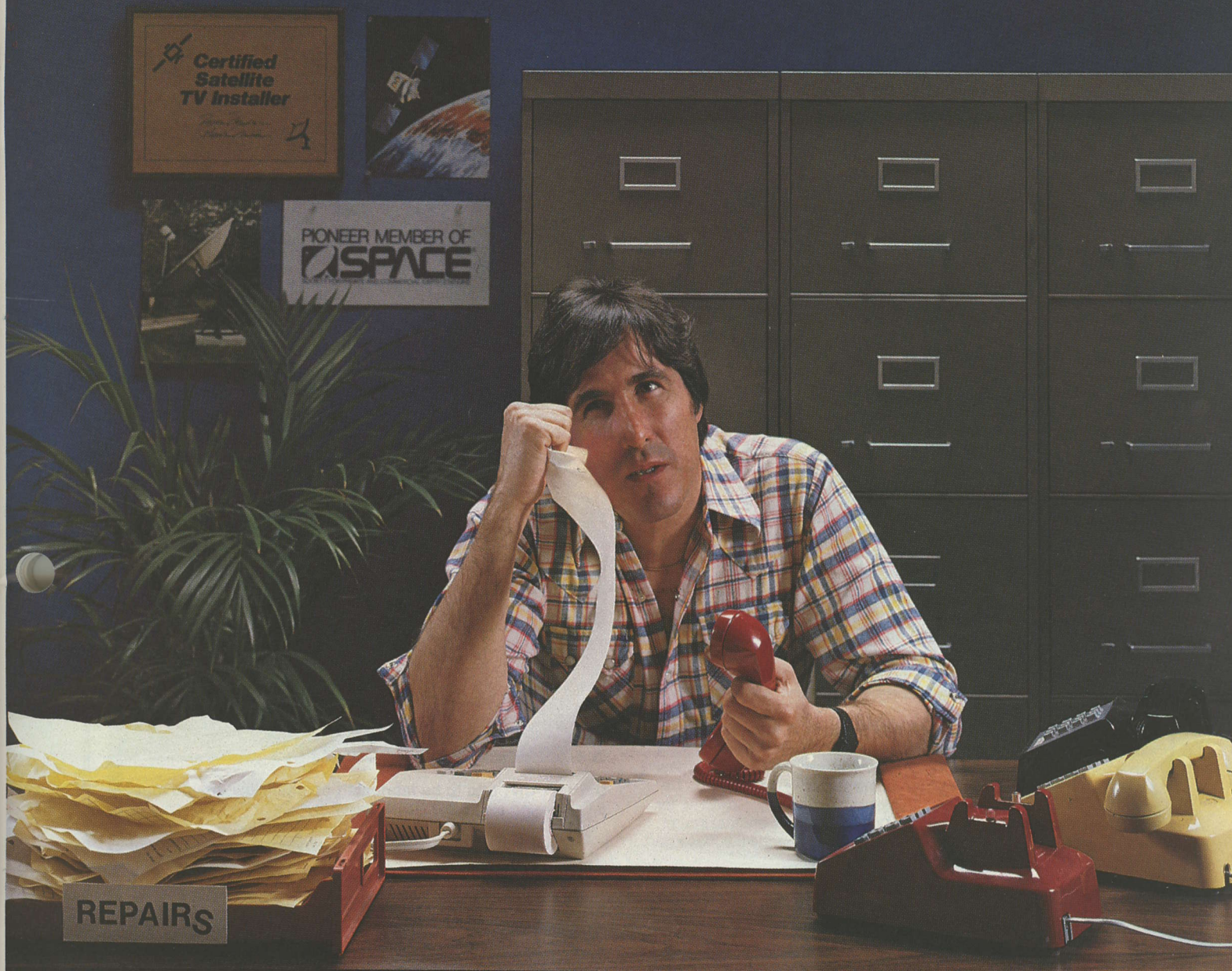
The best transponder here is WGN, or TR3. As the published photo shows, there is not very much wrong with the quality of the service! Other exceptional quality transponders include 7, 11, 15 and 19, plus 4 and 8. Even with the suspected problem with the feed 'high end roll off', there is a clearly recognizable pattern evolving here.

Readers will recall that on F3R we have six of the 'high power' or 8.5 watt transponders in service. They are 3, 7, 11, 15, 19 and 23. We also have two sets of transponders (a set is six transponders) which are 'power divided' at the satellite to provide service to not only the continental United States (CONUS), but also through a secondary F3R transmitting antenna, to Hawaii on a 'spot beam'. Those power divided transponders are 2, 6, 10, 14, 18 and 22 on the horizontal side, and, 1, 5, 9, 11, 13, 17 and 21 on the vertical side. The effects of this power division, which reduces the power available for the main (CONUS) beam, is evident with my recorded signal level readings.

We also have six 'regular' transponders; those that run at the nominal 5 watt power level, and which are not power divided to feed a Hawaiian spot beam. Those are transponders 4, 8, 12, 16, 20 and 24.

If you allow for the high end roll off of the receive system, driving the higher numbered channels down in signal level below what they should be with this problem corrected, we see the influence of all of these factors. The high power, normal (CONUS) beam transponders (WGN et al) are best; the horizontal 5 watt, non-power-split transponders (Spotlight et al) are next best. Bringing up the bottom are the power-split transponders on both vertical and horizontal. This is a

# Rather be selling than servicing? Call Dexcel.



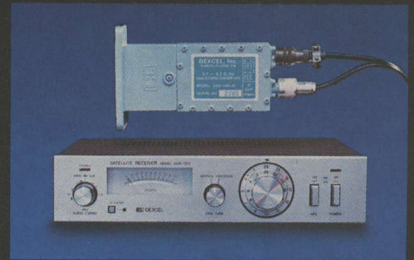
Handling TVRO returns and service calls wastes time and eats profits. That's why Dexcel built the DXP-1100 to be the most dependable receiver system you can buy, with fewer than 3% returns.

And Dexcel backs it up, by offering you the **only** two-year warranty on the market.

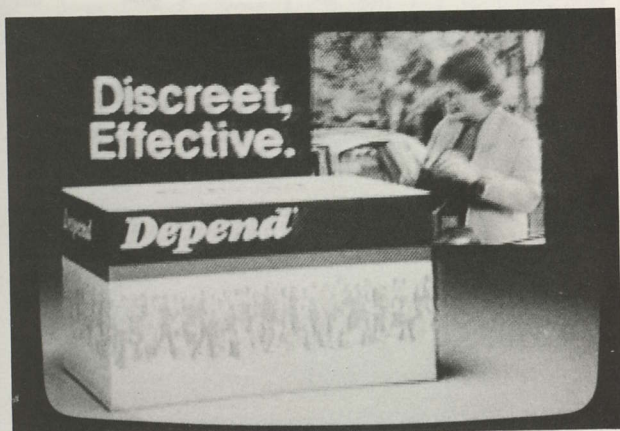
DXP-1100 includes:

- Compact LNC for easy installation
- Stereo and modulator built right into the receiver
- 125 ft of cable with connectors
- Standard remote control
- Best value

Call today for the distributor nearest you. Gould Inc., Dexcel Division, 2285C Martin Ave., Santa Clara, CA 95050. TWX 910-338-0180. **Phone 408/727-9833, extension 37.**



**GOULD**  
Electronics



**WGN in Guyana/meter reading of 40, and about as perfect pictures as you could hope for!**

pattern that has been repeated over and over again from as close in as Florida and the US southeastern states clear across the Caribbean and now as far east, and south, as Guyana.

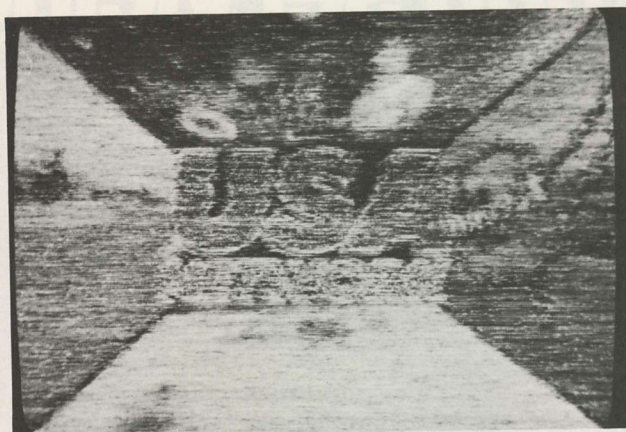
#### **Strange Fading Continues**

In the February report it was noted that there was a regular, virtually clockable, signal fade condition found each evening on the higher bird signals. When I had the big dish locked on Westar 4, the drift phenomenon appearing to be occurring between 8 and 9 PM eastern time. Now that my activity is concentrated on a more westerly bird, the drift phenomenon is occurring approximately one hour later.

As suggested in February, more research and more precise observation by several of us located in more southern latitudes is called for. It is well known that the ionospheric layers, which produce a reflective layer for shortwave signals during the daytime hours, have a 'discharge' or dissipation phenomenon of their own. There is a build up, or a charge, directly over and on either side of the geomagnetic equator each evening. This effect is more pronounced in the spring (February to April) and fall (September to November) months. As the sun 'sets' into the west, this charge or bulge in the ionosphere follows the sun in a westerly direction.

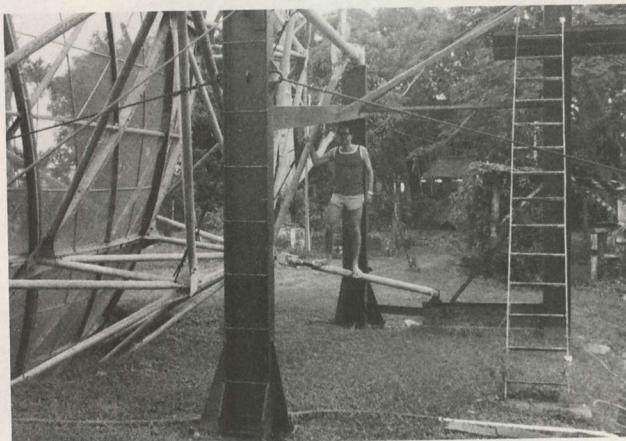
A limited amount of research has been done to determine the upper frequency limits of this effect. Amateur radio operators, taking advantage of this charge or bulge, have proven that there is signal propagation across the equator in some zones of the earth on frequencies as high as 432 MHz; a UHF region frequency. However, for the same effect to manifest itself at 4,000 MHz is quite another matter, since the ionosphere is generally believed to be opaque (i.e. have no effect) above say 500 MHz.

Still, something related to the sun, and related to the westerly drift



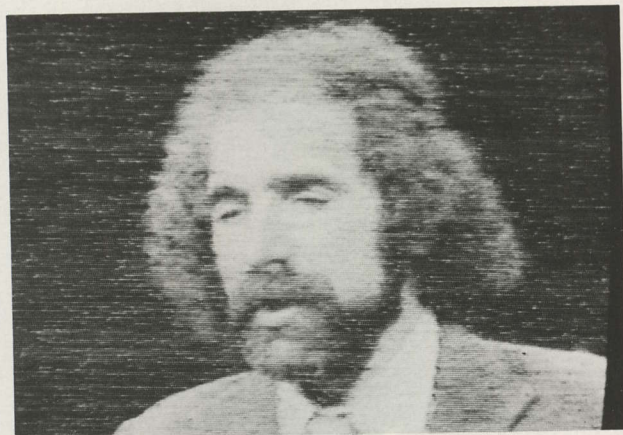
**USA NETWORK is on the weaker, Hawaiian power-split, vertical set of transponders. It shows, coming in with a meter reading in the 13 range.**

of the sun, is causing the signal levels to change at an almost precise time period each evening. And this effect is, to my surprise, no more noticeable on the **low look angle** F3R signals than it was on our



**DISH MOUNT had to be fabricated on site. How do you move a 6,000 pound antenna? VERY carefully!**

higher look angle W4 service. I had, quite frankly, expected to see a greater 'effect' on the lower look angle signals since they will be crossing along and through a greater portion of both the ionosphere,



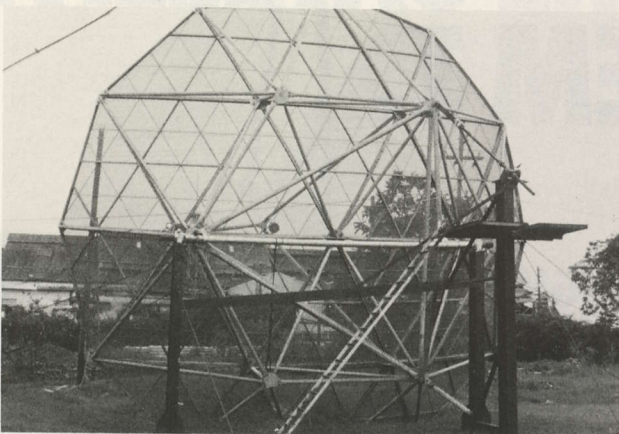
**CABLE NEWS NETWORK is on the Hawaiian power split set of transponders on the horizontal side. Meter reading of 16.**



**SHOWTIME on normal, five-watt, CONUS beamed transponder set. Meter reading was 22.**

and the lower atmosphere, before arriving at my location. Once again I ask for the cooperation of others located along the northern coast of South America, and ask that those equipped for measuring relatively precise signal level changes communicate with me directly so that we can attempt to establish a system of systematic monitoring at numerous locations.

Understanding this phenomenon is not likely to change the course of human events, but it is a puzzle that needs some study.



**33 FOOT MONSTER dish resurfaced after prior use at 900 MHz suffers from a dish curvature accuracy which probably leaves much to be desired at 4 GHz!**

#### GUYANA F3R SIGNAL LEVELS

Recorded February 25, 1983 on COM 3 receiver adjusted to keep strongest signal on scale (i.e. not pin meter).

Transponder	Relative Level
1	12
3	40

## THE SKY IS FILLING UP

Four times per year the Federal Communications Commission, through their Laurel, Maryland test and development facility, conducts a 'survey' of the existing domestic satellites in operation for North America. This exercise has become something of a measurement tool since the Commission now draws heavily from the four time per year measurements to gauge the apparent 'loading' of the satellites. To the Commission, 'loading' is an important indication of just how busy the existing, operational satellites might be; and, conversely, how many more geo-stationary Clark orbit domestic birds should be authorized.

The FCC's measurement technique is subject to considerable challenge since the Commission is unable to fund a full-time study of the 'loading' factor. The study is done in one to three days, during

5	12
7	32
9	13
11	37
13	12
15	30
17	11
19	27
21	10
23	22
2	14
4	30
6	12
8	22
10	16
12	22
14	15
16	22
18	14
20	13
22	11
24	10

**Coops Note:** Translating the Viera report to smaller size dishes, it would appear that a **good quality** 12 foot or an **average quality** 14 foot antenna, at the same location, would produce pictures of the quality of TR12 (see photo) on the hotter vertical set; transponders 3, 7, 11, 15, 19 and 23. The hotter horizontal set (4, 8, 12, 16, 20 and 24) should in turn be at about the level seen in the CNN photo here. This assumes that the low look angle (8 degrees) does not turn out to be a 'noise source' for you since low-look-angle noise could indeed degrade the service from these levels. The protection against low-look-angle noise is to be certain the dish selected has a good pattern (mostly a function of the feed) and that the f/D of the dish mates with the f/D designed of the feed. A dish that has an f/D of .3, but equipped with a feed designed for dishes with an f/D of say .4 will definitely give you some noise problems because of 'mis-match' between the dish and the feed.

## FCC TRANSPONDER REPORT

normal FCC business hours at Laurel. This invites other challenges to the validity of the study since many of the video transponders are more often in use with 'occasional traffic' at night than they are during the daytime; and, weekend periods are also known for their increased video transponder activity.

The Commission's study involves cranking a TVRO/ARO receiving antenna towards each of the 15 domestic North American birds (Satcom V on the west end, Westar I/II on the east end; including ANIKs A, B and D) and then running through all of the transponders on each bird, and both polarizations where there are dual polarized birds.

# INTRODUCING THE AMPLICA HOME SATELLITE SYSTEM I.

## THE FIRST COMPLETE SYSTEM DESIGNED FROM THE GROUND UP.

It's finally arrived. The first complete home satellite receiver system that's built to work together. Because all the parts come from one manufacturer. Amplica.

For a limited time only, we're offering a few dealers a unique opportunity to get in on the ground floor by handling the system before anyone else.

With the Amplica Home System I, you can stop hassling with separate companies and components that may not be compatible. And start taking advantage of Amplica's one-stop shopping and all the benefits that come with being an Amplica dealer.

### IT'S BEEN WORTH THE WAIT.

The Amplica Home System I has all the components your customers need to start enjoying over 100 channels of entertainment. Including the antenna with actuated mount. Revolutionary new feed and polarity control. And our new System I receiver with infra-red remote, LED readout and detent tuning.

It offers higher quality performance. Much easier installation because there are fewer parts. Plus all the popular features people want in a system.

Also, the entire system comes from Amplica. So you'll never have to call anyone else for parts or service.

### COMSAT A BIG NAME WITH BIG BACKING.

In 1982, Amplica joined forces with Communications Satellite Corporation (Comsat), the leader in global satellite communications. With their big name behind us, you can be sure we'll be behind you for a long time to come.

We'll start by supporting your initial sales efforts with major national magazine, television and radio campaigns.

In addition, we'll also provide you with all the materials you'll need to market the Amplica Home System I in your own dealership. Including point-of-sale displays, co-op advertising kits, and much, much more.

### GET IN WHILE YOU CAN.

The opportunity to become an Amplica dealer can't last. So sign up now for sky-high profits.

For complete information on how you can get in now, call Amplica at (805) 499-2621.

 **Amplica, Inc.**



A COMSAT COMPANY

950 LAWRENCE DRIVE, NEWBURY PARK, CA 91320

Use of this equipment, as part of a TVRO system, may violate Section 605 of the Communications Act of 1934, as amended, through the unauthorized interception and divulgence of radio communications for one's own benefit where there is no entitlement to its receipt. The customer is responsible for compliance with all local, state and federal government laws and regulations including but not limited to construction, placement and use.



The basic reception equipment is a spectrum analyzer that allows the engineers to analyze and measure the content of each of the transponders. Video carriers, for example, have a distinctive 'signature pattern' on a spectrum analyzer. FDMA/FM, FDM/FM and single carrier per channel also have distinctive signatures. No interest is paid to the 'content' of the transponder; only to the apparent 'loading' of that transponder versus the amount of information or data or channels of data the transponder could carry if it were 'fully loaded.'

The most recent study was done March 21, 22, 23 and 29. The US portion of the belt was monitored during normal business hours on Monday-Wednesday (dates given) while the Canadian loading factor was done on a Tuesday. The length of the checks varied from just a few minutes (ANIK A had but a single transponder operational), to more than 90 minutes. The more complex the 'loading scheme' the longer it takes to diagnose the type of loading present and 'log' the information.

The FCC checks do miss at least one type of 'regular' traffic; the so-called 'spread spectrum' transmissions. In spread spectrum, the actual frequency of the intelligence is varied up and down the transponder, or a major portion of the transponder (such as a 2 MHz 'bite'). The receiver locks onto and follows the information as it 'spreads' at a pre-determined or pseudo-random rate within the assigned portion of the transponder(s). It is actually possible for spread spectrum transmissions to 'fit into' a transponder occupied by other more conventional modulation (carrier) formats. Tests conducted with Intelsat birds, for example, revealed that spread spectrum data and voice could be transmitted on top of full and half transponder video with no 'noticeable degradation' to the video information. Whereas normal 'add-on' transmissions carry audio or data on sub-carriers, or on SCPC within an assigned transponder and on an assigned frequency, the spread spectrum approach literally 'spreads' the transmitted information out over a big chunk of space or spectrum. At any given frequency within the transponder, such as that occupied by the aural sub-carrier for example, there is never enough intelligence on that frequency long enough, or at a level strong enough, for the user of the audio sub-carrier to even notice that the spread spectrum signal is there, or was there. On transponder 18, for example, spread spectrum shares the regular transmission format of Reuters during the daytime weekday business hours to make possible the transmission of the 'Reuters Mini Service.'

In the tables which follow, you will notice the following information under the 'baseband' column:

- 1) **Maximum baseband 3040 KHz.** This tells you how much of the transponder is in use, or was in use, at the time of the check. A fully 'loaded' transponder would have a baseband use to in excess of 8 MHz (8000 KHz). Therefore the **lower** the 'KHz loading' number, the lower the total amount of data being transmitted on that transponder.
- 2) **Subcarriers: 6.2, 6.8 MHz.** This tells you that in addition to the 'baseband video' carrier being detected, there were also (aural) sub-carriers located at the frequencies shown. It may also (see transponder 12, Satcom I) tell you where the 'center carriers' are located for an FM data/audio (no video) system.
- 3) **Subcarriers\*.** See Satcom IIIR. Where there are multiple audio sub-carriers, the asterisk (\*) tells you that the program audio (accompanying the video) was found on 6.8 MHz while other sub-carriers are either listed (6.2 MHz) or indicated ("... plus 14 others; highest 8.15 MHz"), such as transponder 3, F3R.

#### GEOSYNCHRONOUS SATELLITES INCLUDED IN THIS REPORT

SATELLITE	WEST LONG.	TRANSPONDER/POLARIZATION SCHEME
SATCOM V	143.0	A
SATCOM I	135.0	A
SATCOM III	131.0	A
COMSTAR IV	127.0	A
WESTAR V	123.0	B
SATCOM II	119.0	A
ANIK A	114.0	C

ANIK B	109.0	C
ANIK D	104.0	B
WESTAR IV	99.0	B
COMSTAR I/II	95.0	A
WESTAR III	91.0	C
COMSTAR III	87.0	A
SATCOM IV	83.0	A
WESTAR I/II	79.0	C

NOTE: Users of this report are advised that, for the purposes of this report, transponder loading is defined as occupancy or usage at the time of the observation. As observations in this report are a quarterly "spot check" conducted usually during normal business hours, they should not be construed as necessarily indicative of loading at other times of the day.

#### TRANSPONDER FREQUENCY/POLARIZATION

FREQUENCY	TRANSPONDER/POLARIZATION SCHEME			
	A	B	C	D
3720	1 V	1 H	1 H	
3740	2 H	2 V		1 V
3760	3 V	3 H	2 H	
3780	4 H	4 V		2 V
3800	5 V	5 H	3 H	
3820	6 H	6 V		3 V
3840	7 V	7 H	4 H	
3860	8 H	8 V		4 V
3880	9 V	9 H	5 H	
3900	10H	10V		5 V
3920	11V	11H	6 H	
3940	12H	12V		6 V
3960	13V	13H	7 H	
3980	14H	14V		7 V
4000	15V	15H	8 H	
4020	16H	16V		8 V
4040	17V	17H	9 H	
4060	18H	18V		9 V
4080	19V	19H	10H	
4100	20H	20V		10V
4120	21V	21H	11H	
4140	22H	22V		11V
4160	23V	23H	12H	
4180	24H	24V		12V

#### SATCOM V 143.0 W TRANSPONDER LOADING OBSERVED: 3/21/83 3:30-4:30 PM

TRANSPONDER	EMISSION	BASEBAND
1	Inactive	
2	Inactive	
3	FDM/FM	Max. Baseband: 3040 KHz.
4	Inactive	
5	FDMA/FDM/FM	Max. Baseband: —3787.5 MHz. (Unable to detect) —3805.0 MHz. Max. Baseband: 2290 KHz.
6	Inactive	
7	FDM/FM	Max. Baseband: 2290 KHz.
8	Inactive	
9	Inactive	
10	Inactive	
11	FDM/FM	Max. Baseband: 8120 KHz.
12	Inactive	
13	Inactive	
14	Inactive	
15	Inactive	
16	Inactive	
17	FDM/FM	Max. Baseband: 7370 KHz.
18	Inactive	

19	Inactive	
20	Inactive	
21	Inactive	
22	Inactive	
23	FDM/FM	Max. Baseband: 8120 KHz.
24	Inactive	

**SATCOM I 135.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/21/83 2:30-3:30 PM

TRANSPONDER	EMISSION	BASEBAND
1	Inactive	
2	Inactive	
3	Inactive	
4	Inactive	
5	Inactive	
6	Digital — Wide-band (36 MHz.)	
7	Inactive	
8	TV/FM	Subcarrier: 6.8 MHz.
9	Inactive	
10	FDM/FM	Max. Baseband: 3780 KHz
11	FDM/FM	Max. Baseband: 6380 KHz
12	FM	Subcarriers: 4.2, 4.6, 5.0, 5.4, 5.8, 6.2 MHz.
13	Inactive	
14	Inactive	
15	FDM/FM	Max. Baseband: 8120 KHz
16	Inactive	
17	FDM/FM	Max. Baseband: 8120 KHz
18	Inactive	
19	FDM/FM	Max. Baseband: 8120 KHz
20	Inactive	
21	FDM/FM	Max. Baseband: 2540 KHz
22	FDM/FM	Max. Baseband: 4030 KHz
23	Digital — Wide-band (36 MHz.)	
24	Inactive	

**SATCOM III 131.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/22/83 11:00-11:45 PM

TRANSPONDER	EMISSION	BASEBAND
1	TV/FM (Nickelodeon)	*
2	TV/FM (PTL)	Subcarriers:*, 6.2 MHz.
3	TV/FM (WGN)	Subcarriers:*, plus 14 others; highest 8.15 MHz.
4	TV/FM (Spotlight/East)	Subcarriers:*, 5.8, 6.2 MHz.
5	TV/FM (The Movie Channel)	Subcarriers:*, 5.8 MHz.
6	TV/FM (WTBS)	Subcarriers:*, plus 8 others; highest 7.79 MHz.
7	TV/FM (ESPN)	Subcarriers:*, 6.2 MHz.
8	TV/FM (CBN)	Subcarrier:*
9	TV/FM (USA Net)	Subcarriers:*, 6.2 MHz.
10	TV/FM (Showtime/West)	Subcarriers:*, 6.2 MHz.
11	TV/FM (MTV)	Subcarriers:*, 6.6, 5.8, 7.0 MHz.
12	TV/FM (Showtime/East)	Subcarriers:*, 6.2 MHz.
13	TV/FM (HBO/West)	*
14	TV/FM (CNN)	Subcarriers:*, 6.2 MHz.
15	TV/FM (CNN2)	*
16	TV/FM (HTN/ACSN/NJT)	Subcarriers:*, 6.2 MHz.

17	TV/FM (Cable Health)	Subcarriers:*, 6.2, 7.5 MHz.
18	TV/FM (Reuters/EWTN/AVN)	*
19	TV/FM (C-SPAN)	*
20	TV/FM (Cinemax/East)	*
21	TV/FM (Weather Channel)	*
22	TV/FM (MSN/USA/HBO)	*
23	TV/FM (Cinemax/West)	Subcarriers:*, 5.5 MHz.
24	TV/FM (HBO/East)	*

\*Note: TV/FM program audio subcarrier on 6.8 MHz.

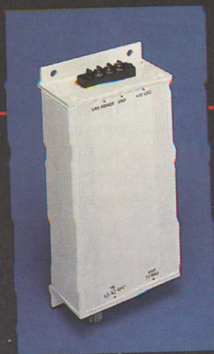
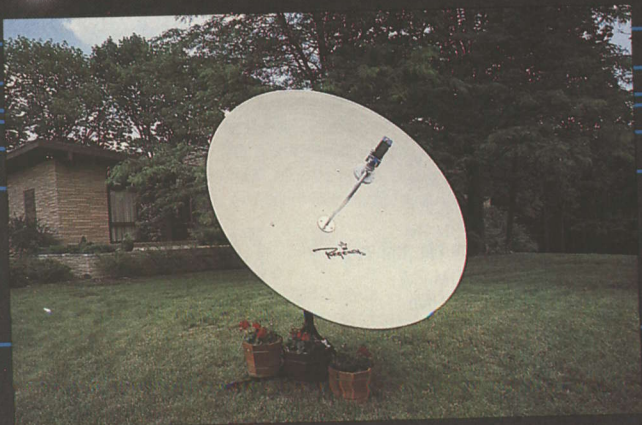
**COMSTAR IV 127.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/22/83 12:30-1:45 PM

TRANSPONDER	EMISSION	BASEBAND
1	FDM/FM	Max. Baseband: 8500 KHz.
2	Inactive	
3	FDM/FM	Max. Baseband: 8500 KHz.
4	FDM/FM	Max. Baseband: 4740 KHz.
5	FDM/FM	Max. Baseband: 5770 KHz.
6	FDM/FM	Max. Baseband: 8500 KHz.
7	FDM/FM	Max. Baseband: 6000 KHz.
8	TV/FM (ON TV)	Subcarriers: 6.2, 6.8 MHz.
9	FDM/FM	Max. Baseband: 6400 KHz.
10	Inactive	
11	TV/FM (ON TV)	Subcarriers: 6.2, 6.8 MHz.
12	Inactive	
13	Inactive	
14	Inactive	
15	Inactive	
16	Inactive	
17	FDM/FM	Max. Baseband: 6400 KHz.
18	TV/FM (CM TV)	Subcarrier: 6.8 MHz.
19	FDM/FM	Max. Baseband: 5730 KHz.
20	Inactive	
21	Inactive	
22	FDM/FM	Max. Baseband: 7280 KHz.
23	FDM/FM	Max. Baseband: 8520 KHz.
24	Inactive	

**WESTAR V 123.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/22/83 2:30-3:30 PM

TRANSPONDER	EMISSION	BASEBAND
1	Inactive	
2	Inactive	
3	TV/FM (WOR-TV)	Subcarrier: 6.8 MHz.
4	Inactive	
5	Inactive (SelectTV)	
6	SCPC — 6 channels	
7	Inactive	
8	TV/FM (SNC/Regional Feeds)	Subcarriers: 6.8 MHz.
9	SCPC — 26 channels	
10	Inactive (Disney/West)	
11	TV/FM (SNC/National)	Subcarriers: 5.4, 5.75, 6.2, 6.8 MHz.
12	TV/FM (Disney/East)	Subcarriers: 6.2, 6.8 MHz.
13	SCPC — 33 channels	

# INTRODUCING THE OLDEST NEW SATELLITE SYSTEMS COMPANY



# REGENCY

Regency: The company that made the world's first transistor radio. The company that's been in electronics for 36 years. The company with products ranging from CATV converters, micro wave test equipment, communications transceivers and military service monitors.

Great. But what's Regency done for you lately? Simple. Yet very impressive. We've introduced the satellite system components destined to be the leader. Here's why.

First there's a receiver with performance as good as its looks. And looks as good as its performance. While this photograph hardly does justice to the performance, it does let you behold the styling and features of the future.

Want the specifics? Consider this: Detent tuning with AFC. Preset and variable audio control. Signal strength and center tune meters. Built-in Chaparral Polarotor control. Polarization skew adjustment. Dynamic noise reduction audio circuitry. External meter jack. Built-in modulator. Composite baseband output. Defeatable AFC. Unmodulated video and audio output. Plus a stable, rugged, and weather sealed downconverter.

Now take all that, tag it with a super competitive price and back it with the service of a very strong company.

Beginning to be impressed yet? Read on. There's more.

Connect that receiver to a true breakthrough in antenna design. Meet the new Regency Polaris satellite antenna. It was born in the mind of a design computer. So its 90 inch diameter, deep profile shape gives you at least .6 to .8 db better carrier to noise ratio than any conventional "dish." Take that design, mount it on a rugged steel polar tracking mount that's the essence of simplicity to install. And insure superior performance for years with a high surface accuracy, hard alloy marine grade aluminium reflector. That's the Regency Polaris satellite antenna.

Think we're done yet? No, there's more. Because we know when we can improve on the state of the art, and when we can't. So when we saw the best, we didn't tamper. That's the reason every Regency satellite antenna is packaged with a Chaparral Polarotor.

The new Regency satellite system components. From the oldest new satellite systems company. Simple, very impressive, and destined to be the leader.

So don't follow anyone else. Call one of the authorized distribution centers listed below for the name of your nearest dealer.

## AUTHORIZED REGENCY DISTRIBUTORS

A/V Electronics  
4301 North Star Boulevard  
Great Falls, MT 59401  
1-800-548-9950

Antenna Development Manufacturing  
P.O. Box 1178 Highway 67 South  
Poplar Bluff, MO 63901  
1-314-686-1484

Consumer Satellite Systems, Inc.  
6202 La Pas Trail  
Indianapolis, IN 46268  
1-317-299-0020

Echosphere Corp.  
2250 South Raritan, Building A  
Englewood, CO 80110  
1-800-521-9282

Hoosier Electronics  
P.O. Box 3300  
Terre Haute, IN 47803  
1-812-238-1456

Lewis Electronics Co.  
West Elm Street  
Humboldt, TN 38343  
1-901-784-2191

Satellite Sales, Inc.  
688D Alpha Drive  
Cleveland, OH 44143  
1-800-321-1188

Satellite T.V. Systems  
Rogers Plaza 123 By-Pass  
Clemson, SC 29631  
1-803-654-5569

Star-Com Dist./Mutex Corp.  
511 South Gregg  
Big Springs, TX 79720  
1-800-351-1426

TransVision Corp.  
2100 Redwood Highway  
Greenbrae, CA 94904  
1-415-924-6963



SATELLITE SYSTEMS  
7707 RECORDS ST.  
INDIANAPOLIS, IN 46226

## FILLING UP/ continued from page 15

14	TV/FM (SNC/ Regional Feeds)	Subcarriers: 6.2, 6.8 MHz.
15	TV/FM (SNC/ Inbound)	Subcarriers: 6.2, 6.8 MHz.
16	TV/FM (SNC/ Inbound)	Subcarriers: 6.2, 6.8 MHz.
17	TV/FM (Nashville Network)	Subcarriers: 5.4, 5.75, 6.2, 6.8 MHz.
18	Inactive (SNC/ Regional Feeds)	
19	Digital (Wideband 36 MHz.)	
20	Inactive (American Health Net.)	
21	TV/FM (Spotlight/ West)	Subcarriers: 5.8, 6.2, 6.8 MHz.
22	Inactive	
23	TV/FM (Arts/ Daytime)	Subcarriers: 6.2, 6.8 MHz.
24	TV/FM (Encoded) (BET)	Subcarriers: None (6.8 MHz.)

**SATCOM II 119.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/23/83 2:00-3:00 PM

TRANSPONDER	EMISSION	BASEBAND
1	SCPC — 12 channels	
2	Inactive	
3	Inactive	
4	TV/FM	Subcarrier: 6.8 MHz.
5	FDM/FM	Max. Baseband: 4939 KHz
6	Inactive	
7	FDM/FM	Max. Baseband: 3280 KHz
8	Inactive	
9	SCPC — 16 plus channels	
10	Inactive	
11	Inactive	
12	Inactive	
13	SCPC — 22 plus channels	
14	SCPC — 21 channels	
15	Inactive	
16	SCPC — 8 plus channels	
17	Inactive	
18	Digital — Wideband (36 MHz.)	
19	Inactive	
20	TV/FM (AFRTS)	Subcarrier: 6.8 MHz.
21	Inactive	
22	Inactive	
23	Digital — Wideband (36 MHz.)	
24		

NOTE: Satcom I and II currently operate as "pair" at 119 west.

**ANIK A 114.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/29/83 11:00 AM

TRANSPONDER	EMISSION
4160 MHz.	SCPC — 12 channels, bandwidth: 1 MHz. each

**ANIK B 109.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/29/83 9:00-10:00 AM

TRANSPONDER	EMISSION	BASEBAND
1	SCPC — 29 channels	
2	SCPC — 79 channels	
3	SCPC — 6 channels	
4 ( 7)	TV/FM	*1, *2
5	FDMA/FDM/FM — 3871 MHz.	Max. Baseband: 1550 KHz.
	— 3889 MHz.	Max. Baseband: 1550 KHz.
6 (11)	TV/FM (CBC North)	*1, *2
7 (13)	TV/FM	*1
8 (15)	TV/FM (CBC French)	*1, *2
9	FM — 4024.0 MHz. — Audio	360 KHz BW (with dispersion)
10 (19)	TV/FM (CBC North/ Atlantic)	*1, *2 (additional 200 KHz FM voice 500 KHz above)
11	Digital	(Wideband — 36 MHz. wide)
12	Inactive	

\*NOTE: 1. Program audio subcarrier on 6.8 MHz.  
2. 200 KHz wide FM voice signal 2 MHz above low transponder band edge. (Example: transponder 6, centered at 3920 MHz has FM voice signal at 3904.0 MHz.)

**ANIK D 104.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/29/83 10:00-11:00 AM

TRANSPONDER	EMISSION	BASEBAND
8	TV/FM (Encoded) (CHCH)	Subcarriers: 5.4, 6.2, 6.8 MHz.
14	TV/FM (Encoded) (TCTV)	Subcarriers: 5.4, 6.2, 6.8 MHz.
16	TV/FM (Parliament/ French)	Subcarriers: 5.4, 6.2, 6.8 MHz.
18	TV/FM (Encoded) (CITV)	Subcarriers: 5.4, 6.2, 6.8 MHz.
22	TV/FM (Encoded) (BCTV)	Subcarriers: 5.4, 6.2, 6.8 MHz.
24	TV/FM (Parliament/ English)	Subcarriers: 5.4, 6.2, 6.8 MHz.

**WESTAR IV 99.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/23/83 11:30 AM-12:30 PM

TRANSPONDER	EMISSION	BASEBAND
1	SCPC — 13 Channels	
2	Inactive	
3	SCPC — 21 Channels	
4	Inactive	
5	Inactive	
6	TV/FM (XEW-TV)	
7	SCPC — 3 channels	Subcarrier: 6.2 MHz.
8	SCPC — 2 channels	
9	Inactive	
10	Inactive	
11	TV/FM	Subcarriers: 6.2, 6.8 MHz.
12	Inactive	
13	SCPC — 47 Channels	
14	Inactive	
15	TV/FM (PBS-A)	Subcarriers: 5.5 (1 MHz. BW), 6.8 MHz.
16	TV/FM (CNN Inbound)	Subcarriers: 6.2 MHz.
17	TV/FM (PBS-B)	Subcarriers: 5.5 (1 MHz. BW), 6.8 MHz.
18	TV/FM (Wold)	Subcarriers: 6.2, 6.8 MHz.
19	Inactive	
20	Inactive	
21	TV/FM (PBS-C)	Subcarriers: 5.5 (1 MHz.

22	Inactive	BW), 6.8 MHz.
23	TV/FM (PBS-D)	Subcarriers: 5.5 (1 MHz. BW), 6.8 MHz.
24	Inactive	

**COMSTAR I/II 95.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/23/83 10:00-11:30 AM

TRANSPONDER	EMISSION	BASEBAND
1	Inactive	
2	SCPC — 15 channels	
3	SCPC — 16 channels	
4	SCPC — 15 channels	
5	SCPC — 18 channels	
6	Inactive	
7	Inactive	
8	Inactive	
9	SCPC — 19 channels	
10	Inactive	
11	Inactive	
12	Inactive	
13	Inactive	
14	Inactive	
15	Inactive	
16	FDM/FM	Max. Baseband: 7240 KHz.
17	Inactive	
18	FM — Sweeping —	Bandwidth: 25.5 MHz. (Increase to 36.0 MHz. at 11:30 AM)
19	Inactive	
20	Inactive	
21	Inactive	
22	Inactive	
23	Inactive	
24	Inactive	

**WESTAR III 91.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/21/83 1:45-2:15 AM

TRANSPONDER	EMISSION	BASEBAND
1	SCPC — 10 channels	
2	SCPC — 9 channels	
3 ( 5)	TV/FM (CNN Inbound)	Subcarriers: 6.2, 6.8 MHz.
4	SCPC — 19 channels	
5	SCPC — 15 channels	
6	Digital — Wideband (36 MHz.)	
7	SCPC — 10 channels (36 MHz.)	
8	Digital — Wideband (36 MHz.)	
9	Digital — Wideband (36 MHz.)	
10	Inactive	
11 (21)	TV/FM	Subcarrier: 6.2 MHz.
12 (23)	TV/FM	Subcarriers: 6.2, 6.8 MHz.

**COMSTAR III 87.0 W**  
TRANSPONDER LOADING  
OBSERVED 3/21/83 1:15-1:45 PM

TRANSPONDER	EMISSION	BASEBAND
1	TV/FM (NBC)	Subcarriers: 5.8, 7.2 MHz.
2	FDM/FM	Max. Baseband: 5730 KHz.
3	Inactive	
4	Inactive	
5	FDM/FM	Max. Baseband: 8440 KHz.
6	FDM/FM	Max. Baseband: 5770 KHz.

7	FDM/FM	Max. Baseband: 7240 KHz.
8	TV/FM (ABC)	Subcarrier: 5.8 MHz.
9	FDM/FM	Max. Baseband: 8470 KHz.
10	TV/FM (CBS)	Subcarriers: 5.8, 6.4 MHz.
11	Inactive	
12	SCPC — 5 channels	
13	TV/FM (ABC)	Subcarrier: 5.8 MHz.
14	FDM/FM	Max. Baseband: 5510 KHz.
15	FDM/FM	Max. Baseband: 7240 KHz.
16	FDM/FM	Max. Baseband: 5500 KHz.
17	TV/FM (CBS)	Subcarriers: 5.8, 6.4 MHz.
18	FDM/FM	Max. Baseband: 5870 KHz.
19	Inactive	
20	Inactive	
21	FDM/FM	Max. Baseband: 4530 KHz.
22	FDM/FM	Max. Baseband: 6870 KHz.
23	FDM/FM	Max. Baseband: 4530 KHz.
24	Inactive	

**SATCOM IV 83.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/21/83 11:45-1:15 PM

TRANSPONDER	EMISSION	BASEBAND
1	TV/FM (SIN)	Subcarrier: 6.8 MHz.
2	TV/FM (FNN/EROS)	Subcarriers: 6.2, 6.8 MHz.
3	TV/FM (SPN)	Subcarriers: 6.4, 6.8, 7.7 MHz.
4	Inactive	
5	Inactive	
6	Inactive (Bravo)	
7	TV/FM (NCN/Playboy)	Subcarriers: 6.8 MHz. plus 14 others. Top subcarrier: 8.15 MHz.
8	TV/FM (was Entertainment Ch)	Subcarriers: 5.95, 6.1, 6.8 MHz.
9	Inactive	
10	Inactive	
11	Inactive	
12	Inactive	
13	Inactive	
14	Inactive	
15	TV/FM (BizNet)	Subcarriers: 6.2, 6.8 MHz.
16	Inactive	
17	TV/FM (TBN)	Subcarriers: 5.6, 5.75, 6.8 MHz.
18	TV/FM (Encoded) (HBO Data)	Subcarriers: 5.5, 6.8 MHz.
19	Inactive (was American Health)	
20	Inactive	
21	Inactive	
22	Inactive (GalaVision)	
23	Inactive	
24	Inactive (NBC)	

**WESTAR I/II 79.0 W**  
TRANSPONDER LOADING  
OBSERVED: 3/21/83 10:30-11:45 AM

TRANSPONDER	EMISSION	BASEBAND
1	FDMA/FDM/FM	
	— 3711.0 MHz.	Max. Baseband: 1300 KHz.
	— 3730.0 MHz.	Max. Baseband: 2040 KHz.
2 (3)	TV/FM	Subcarriers: 6.2, 6.8 MHz.
3	FDM/FM	Max. Baseband: 1300 KHz.
4	FDM/FM	Max. Baseband: 5258 KHz.
5	FDMA/FDM/FM	



# **SATELLITE TELEVISION SYSTEMS**

**WE WILL NOT BE UNDERSOLD!!**

**Complete Systems, Antennas,  
Receivers, LNA's & Accessories**

**CALL US TODAY!**

**812-238-1456**

**hoosier  
electronics**

*"Nation's Largest Satellite Equipment Distributor"*

**P.O. BOX 3300 • TERRE HAUTE, INDIANA 47803**



## “GO WHERE THE FUTURE IS GOING.”

**Become a Volume Dealer for FutureVision™ Products by International Video.**

The satellite antenna (TVRO) industry is still in its infancy. But already, certain companies have emerged as innovative and respected leaders in the field. International Video Communications Corp. is one of those companies.

**International Video. A reputation for quality and dependability you can grow on.**

International Video grew up with the TVRO industry. It was here from the beginning. And by now, it has earned the kind of reputation that gives every International Video dealer a tremendous selling advantage. Through its first quality FutureVision product line, International Video brought the entire world of entertainment to my home in Nashville. And I have been so impressed with the company's dedication to service and integrity, that I have volunteered to endorse them publicly.

**International Video has the plan for your success.**

With its expanding worldwide church network and affiliates, its experience in closed circuit TV and teleconferences, and its rapidly expanding dealership network, International Video has emerged as a leader in the TVRO industry.

Plans have already been made for commercial SMATV systems and a major distributor network. As an International Video FutureVision dealer, you can be in on the ground floor of these rapidly developing markets.

Research has shown that there will be many satellite dealers, but only a few will become successful volume dealers. International Video wants you to be one.

If you are willing to follow a few basic steps, International Video will show you how to become *the* volume satellite dealer in your area. If you are already a dealer, International Video can show you tried and proven methods that could double your existing sales while reducing your overall operating expenses.

**The future won't wait. Contact International Video today.** If you've been searching for a once-in-a-lifetime business opportunity with a virtually unlimited future, your search has just ended. International Video can provide experience, dealer support and an aggressive marketing plan. To see if you qualify to become an International Video dealer, call our Toll Free number. And find out how the future of the International Video Volume Dealer program can work for you.



**International Video Communications Corp.**  
**4005 Landski Drive**  
**North Little Rock, Arkansas 72118**  
**(501) 771-2800**

A sustaining member of SPACE

©1983 INTERNATIONAL VIDEO COMMUNICATIONS CORP.

**Call Today: 1-800-643-5427.**  
**Go Where the Future is Going. Go with International Video.**

6	Inactive	— 3870.0 MHz. Max. Baseband: 1545 KHz.
7	Inactive	— 3886.0 MHz. Max. Baseband: 1300 KHz.
8	FDM/FM	— 3894.8 — carrier sweeping
9	FDMA/FDM/FM	— Bandwidth: 1800 KHz.

Max. Baseband: 6746  
— carrier sweeping

10  
11  
12

Inactive  
FDM/FM  
Inactive

— 4030.0 MHz. — Bandwidth: 2400 KHz.  
— 4049.0 MHz. Max. Baseband: 2452 KHz.

Max. Baseband: 6746 KHz.

NOTE: Westar I "retired" May ('83); now only Westar II active.

## PIRACY

## THE SEEDS OF OUR DESTRUCTION?

### PIRACY A-Go-Go

History probably did not record the first illegal (as in unauthorized) use of satellite service signals 'for profit.' Some would suggest that when Canadian Rod Wheeler hooked up a 20 foot dish to his Whitehorse (Yukon Territory) cable system in Canada in the summer of 1977 he was in fact 'stealing' a satellite signal and then re-selling it for dollars. That Wheeler's carriage of WTBS only lasted 72 hours (the mounties shut it down) to some 4,000 cable homes probably may disqualify him from the distinction of being the first 'satellite pirate' for profit.

The industry has been plagued with the 'piracy label' from the day there was an industry. Even before. Much of the confusion about pirating drifts into and out of the quasi-law that exists from the original 1934 Communications Act. This Act is still our basic law foundation today, and absent any more recent law or any court cases that attempt to redefine that ancient law against a backdrop of modern technology, the piracy question is at best muddled.

The general assumption is that even the most liberal translation of the 1934 Act would exclude private, in-home viewing from legal consequences. The language of the Act says that it is illegal to 'intercept' and 'profit from' private transmissions not intended for public consumption. Some conservative lawyers argue that either 'interception' or 'profiting from' is a clear violation of the law. Others, and they number the majority, hold that you must have both acts (interception and profiting from) to be afoul of the law. And attempts to redefine that law, especially in the area of TVRO reception of private satellite transmissions, date back to 1979 or so. Each year since has seen at least one major effort started by one or more groups who would like to see home terminals clearly outlawed. Those firms programming premium program services (HBO et al) have led those attempts to get new legislation introduced and passed in Congress. And SPACE has seen to it that none of the laws proposed have reached the President's desk.

**Interception and profit.** There are some attorneys and one assumes some judges who would argue that if you intercept a private transmission (i.e. you have a working terminal), and you sit and watch it or sit and listen to it, you are 'profiting' by being exposed to the content matter. This group of new-law-advocates argue that if a 'private transmission' is capable of 'holding your interest' that you are indeed 'profiting from the experience.' In other words, mere 'exposure' to the transmission is to profit from the transmission.

**This is a narrowly held view.** The majority of those who have studied this situation feel that profiting from a transmission intercepted

is far more narrowly defined. They suggest that profiting can only come when you collect fees for display of the programming, gain some commercial advantage by displaying the programming, or somehow collect money for the distribution of the programming to others (via cable, over-the-air, or on tape).

Even the most narrowly held legal interpretations agree that if a person installs a TVRO, somehow carries or transports the reception of programs from that TVRO to one or more television receivers **outside** his own private home and in any way gains income or revenue or 'commercial advantage' by this act, there is a violation of Section 605. A motel, **for example**, might install a TVRO. If that motel elected to connect that TVRO to a master antenna system that connected the TVRO to all or any of the rooms in the 'for-rent' portion of the motel complex, the motel has now gained 'commercial advantage' with the TVRO. The motel operator is offering his clients viewing of satellite delivered programming. The motel operator may not tell his prospective clients that he makes this service available; or, he might go so far as to post a sign in front of his establishment which says 'FREE HBO IN ROOMS.' In either event, if the motel operator is not paying for use rights of HBO (or whatever satellite delivered service[s]), he is clearly in violation of Section 605 of the Act.

The grey area that separates thievery of satellite programming from simple shoplifting is confusing at best. Section 605 says that you cannot intercept and profit from the interception. It ALSO says that you cannot **divulge** the contents of what you intercepted to a third party. This actually means that there are **two** things you **cannot** do, under Section 605, and stay 'legal':

- 1) You cannot receive a private (as in HBO), non-public transmission **and** profit from the receipt of that programming; nor can you . . .
- 2) Receive a private (as in HBO), non-public transmission **and** divulge the contents of what you intercepted to a 'third party.'

A motel that installs a TVRO terminal, cables the reception from that terminal to rentable rooms, is against the grain of Section 605 twice; for 'gaining commercial advantage' from the display of the intercepted product, and, for divulging (as in allowing others to share in the reception) the contents of the transmissions intercepted.

And then there are the violations related to being a **part of** such an illegal 'interception.' For example, it is not sufficient that you own and operate a system that engages in such practices. A person who sells and installs **such a system** is **also** liable under the 1934 act because such a person 'assists others' in the breaking of a law. In other words, not only is the motel operator liable for very large fines (\$10,000 or



more for each illegal program interception; if HBO runs 15 events per day, 15 violations times \$10,000 **each**; per day!), but, the guy who designed the system, installed the system, and maintains the system **is just as liable as well.**

Knowledge that this is the way the law is has been sufficient **in the past** to keep this sort of activity to a minimum. **That is no longer the case.** During the past six months or so, there has been a 100 fold increase in the installation and operation of illegal (i.e. non-authorized and non-paying) commercial establishment TVRO systems throughout the United States.

Sources inside some of the private agencies that monitor such things advise us that by the best estimates, as many as 10,000 motels/hotels/rooming houses in the United States alone may now be intercepting and using TVRO signals for distribution to tenants. **Without** paying fees for the programming. This sudden growth in illegal commercial systems has prompted one watchdog agency to fund a \$70,000 field study of where these systems are, what these systems are offering to their tenants, and just how widespread this practice may be. The proliferation of illegal TVRO systems at commercial establishments is hurting a wide variety of people and firms. Our home TVRO industry is one of the affected parties since these illegal commercial terminals are drawing fire for **all** TVROs. The fear in the industry is that there may be emergency federal legislation to authorize the federal government to crack down on these commercial terminals. In the **emotion** of cracking down on the **commercial** terminals, it may well be that home terminal systems will be caught up in the act and be included as well.

**The first affected party** is of course the premium programming firm. The \$70,000 study now nearing completion suggests that 10,000 illegal commercial systems are in place within the 48 states, as of mid-summer 1983. For reasons to be covered shortly,

the average room count per such installation location is judged to be 35. That says we have 350,000 television receivers (10,000 x 35 rooms) out there tuning in HBO et al without paying for the service. If HBO was the only service impacted (i.e. only HBO was being 'tuned in' by the illegal terminals), HBO is losing 350,000 x \$4.50 per outlet per month in revenues. That's a cool \$1,575,000 per month. With many of the systems offering two or more channels, the average loss to the premium programmers is closer to \$3,000,000 per month. Or more than \$36,000,000 per year. This is not an insignificant revenue drain.

**The second affected party** is the cable television operator in the area where the illegal terminal is located. The cable operator passes by the door of the motel but he has no contract to serve there. Why should he when the motel operator is stealing for free what the cable operator wants to sell? The cable operator doesn't sell HBO for the **same** \$4.50 price per outlet which it pays for it; he generally gets at least \$8.00 per month from a motel account. So the cable operator, on a small, local scale, is losing \$3.50 per outlet per month. If the cable operator loses say 2,000 outlets in his town because of illegal commercial terminals, he loses \$7,000 in new net revenues per month. Across the whole nation, 10,000 motels, the cable industry is losing \$1,225,000 per month or \$14,700,000 per year on just the 'first' premium channel they might otherwise sell to motels.

**The third party affected** is the city where the cable firm is operating. The city gets from 3 to 5% of the gross revenues of the cable system as a 'franchise fee.' If the motel operator is not taking cable, he is bypassing the franchise fee collection system of the city. So we have 350,000 motel et al rooms not paying \$8.00 per month (or \$96 per year) to the local cable company. That amounts

# EARTH STATION RECEIVER



## ESR224 RECEIVER

### FULL PERFORMANCE SATELLITE TV RECEPTION

- All 24 Satellite Channels • Attractive Styling
- Detent Channel Tuning • Normal/Inverted Video Switching
- Variable Audio Tuning for All Subcarriers
- Channel "Scan" Function • FCC Approved Modulator Available
- Polarotor™ Interface Standard • Optional RT224 Remote Control Available
- Matching Stereo Adaptor Available

\*Polaroter™ is a registered trademark of Chaparral Communications Inc.

Write for Brochure or See Your Dealer



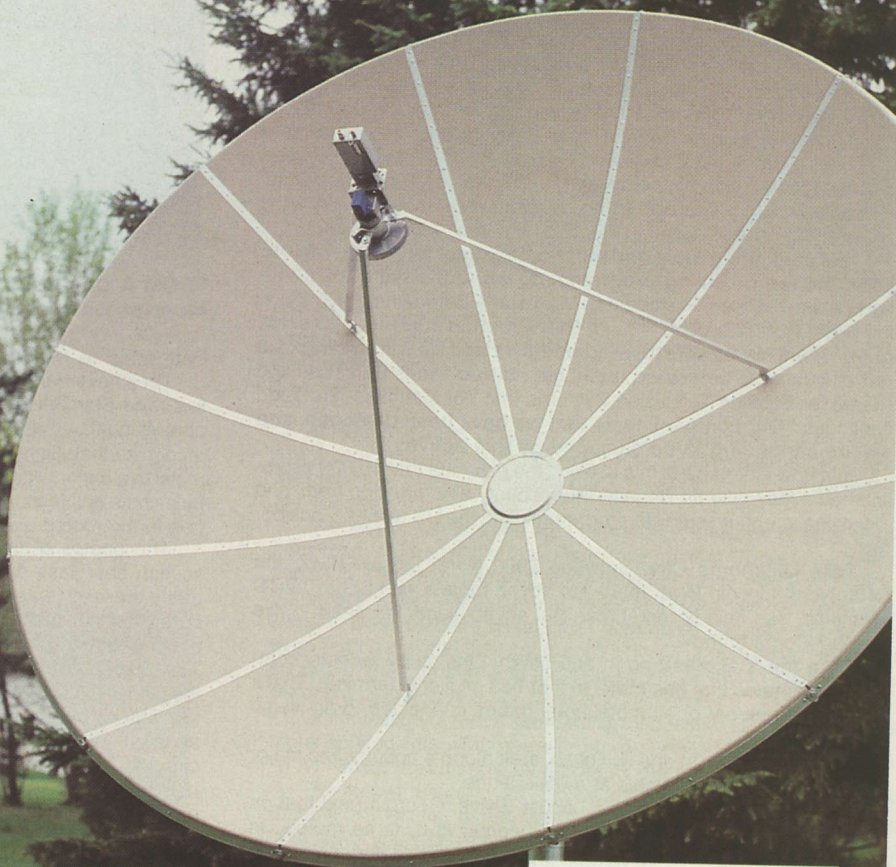
**DRAKE**

R.L. Drake Company  
540 Richard St., Miamisburg, Ohio 45342, U.S.A.  
Phone: (513) 866-2421  
Telex: 288-017

PIONEER MEMBER OF  
**SPACE**

# THE SPHINX

Our eyes are in focus  
with the future...  
Come, enter this world of  
incredible viewing  
pleasure, where the  
quality and durability of  
the past collides with the  
precision technology of  
tomorrow...  
**ENTER THE WORLD OF  
THE SPHINX**



**THE SPHINX...**  
this antenna bears its name well, because  
like the Sphinx created by the great  
Egyptian civilization, it too is a  
phenomenon.

**THE SPHINX...**  
a symbol of ingenuity, power, durability,  
efficiency and precision.

**THE SPHINX...**  
leads to the road of total television.

**THE SPHINX...**  
the best way to years of sharp, clear  
reception and enjoyment.

**THE SPHINX...**  
the only antenna made of Reaction  
Injection Molded (R.I.M.) polyurethane  
structural foam to insure quality,  
consistency, parabolic accuracy and  
resistance to all climatic conditions.

**THE SPHINX...**  
all the advantages your customers are  
looking for:

- can easily be assembled within an hour
- precision workmanship • accurate design
- high quality picture • weatherproof • wind  
resistant • compatible with any electronic  
system • will not crack, shrink or expand

**THE SPHINX...**  
the most sophisticated antenna on the  
market.

**THE SPHINX...**  
the one that beats them all.

**THE SPHINX...**  
the FIRST and ONLY ONE you should offer  
to your customers.



**INDUSTRIES PPD Inc.**  
1649, Belvedere St. South,  
Sherbrooke, Que.  
Canada J1H 4E4  
(819) 569-9521

**INDUSTRIES PPD Inc.**  
351 Steel Case Road West,  
Markham (Toronto) Ontario  
Canada L3R 3W1  
(416) 477-0022

**INDUSTRIES PPD Inc.**  
U.S.A.  
(819) 569-9531

**PPD**

our eyes are focussed on the future

\*Baydur structural foam by Bayer Canada/Mobay

U.S. Master Distributor Wanted. Tel: (819) 569-9521 Telex 05 836258



to \$1,008,000 per year being lost to city franchise fee collectors at the 3% franchise fee rate; or \$1,680,000 lost to the cities each year at the 5% franchise fee level.

The fourth party affected is the legitimate seller of authorized satellite premium movie services. For example, Patmar Technologies launched a national program one year ago to assist authorized SMATV distributors/dealers in offering such programming services as The Movie Channel (TMC), ESPN, CNN and others to motels and hotels where there was no available CATV service. The Patmar approach was to contract with the program suppliers, to sell national and regional and local chains, as well as stand alone motels and hotels, on legal, high quality, SMATV system service. PATMAR broke the United States up into a number of 'marketing regions'; roughly approximating the telephone 'area codes.' The SMATV folks who signed up with Patmar were working together, as a cooperative team, to offer legitimate premium/cable program sources to the transient residence industry. And then the 100 fold jump in illegal commercial terminals hit.

**"We are finding more and more hotel/motel businesses in our area that are receiving programming without paying for it"** reports Allen T. Owen, President of Microwave Entertainment in Blowing Rock, North Carolina. "... **if this situation continues to exist, our firm will not be able to be competitive and we will, in effect, be out of business before we really get started**" adds Ben Todd and Stargazer Satellite Television Systems (Inc.) of Memphis, Tn. Todd continues **"Our company feels that we have been damaged, and we are continuing to be damaged by this activity."**

Just how extensive is this activity; the estimate that 10,000 establishments may now be illegally 'intercepting' and 'profiting from' and 'divulging' premium satellite programming in the US alone? Consider this.

**Take Oklahoma City.** Between 2900 North Lincoln Blvd. and 3400 North Lincoln Blvd. there are seven motels with illegal TVRO terminals. Yes, this is motel row. But seven illegal terminals in five blocks? Come on now.

**Take the 'Dakotas';** north and south. One study recently completed estimated that one motel in four has an illegal terminal. That's twenty-five percent of all motel/hotel rooms connected to an illegal TVRO!

**Take Memphis.** In one two block area along a popular and major highway, 11 illegal terminals at motels alone.

This list is virtually endless. Locust Grove, Georgia (find that on your map!) has three illegal motel systems; **and**, three motels. In particular, the rural towns and freeway located hotels and motels are big users of illegal terminal systems.

Now, what type of deviate is into putting in systems which jeopardize our own industry, the efforts of our trade association, and the shaky relationship that exists between some of the premium programmers such as The Movie Channel and pioneering firms such as



**FROM A DISTANCE** this installation looks pretty pristine. Up close, as the balance of the photos show, they cut a few corners!

Patmar?

They have names like 'Antenna Electronics' (Springdale, Arkansas) and StarChaser. Some of these installations are so incredibly poor in quality that even a rank amateur in the field would quickly recognize their flight-by-night origins. For example, there is the 'Rio' motel in a major Oklahoma city. A ten foot fiberglass dish surrounded by a chain-link fence. Two people can stay here for \$16, and HBO is free in the rooms.

The photos of the installation pretty well tell the story. A four section fiberglass dish equipped with an Alliance antenna rotor to rotate the feed (that won't puzzle you long; we will explain it!). Cables barely taped to the four mounting struts for the feed. Beneath the dish, a pair of down converters fed by a 4 GHz splitter hanging in mid air. The down-converters are 'mounted' (or secured) to the underside of the dish with bolts that extend through the dish. Cables hang all over the place, ugly, sloppy ... **and**, dangerous. The motor drive, apparently designed by the installer, is 110 VAC operated and raw, exposed, 110 VAC is out there in untaped wires at the antenna. If nothing else, the chain link fence might keep a drunk from wandering up close to the dish and getting electrocuted in the middle of the night.

Now, the service.

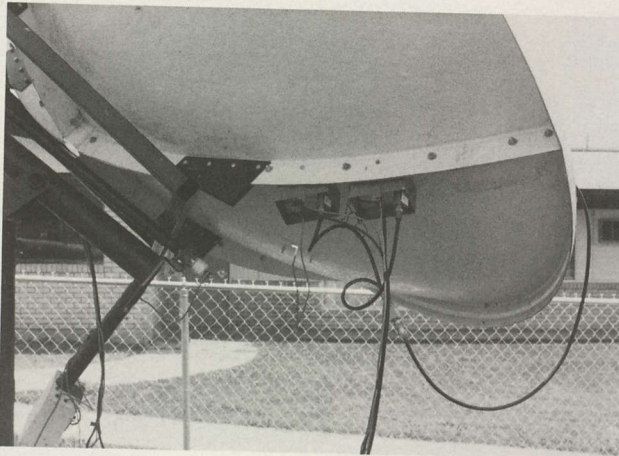
An investigator for CSD checked into the motel. Briefly. The same investigator checked into several motels along the same street to check on the reception and the evening was spent bouncing back and forth between the rooms to see what changes, if any, occurred during the evening. At the Rio the reception at check-in time was from HBO. The second 'satellite channel' was apparently blank; an equipment malfunction. Then just seconds before 7 PM the screen went snowy and after about sixty seconds and several false blips on the screen, our investigator was treated to the sign-on for **The Playboy Channel**. The dish of course had to be moved from F3R to F4 to switch from HBO to The Playboy Channel. This particular system stayed on Playboy for about 90 minutes and then abruptly took off again ending up on Showtime after another dish move.

One might wonder how a motel offering 'Free HBO' or 'Free Satellite Movies' could cope with 35 rooms filled with people who had just gotten into an HBO movie or a Playboy feature, only to have the reception abruptly switch off to another program source. Our investigator found out. He went to the front desk after an unsuccessful effort to raise the desk on the telephone and asked **'What happened to The Playboy Channel'**? The man behind the desk, engrossed in the new appearing Showtime feature muttered something in a foreign language. The language turned out to be Persian; a tongue our investigator was not fluent in. The rough translation was **"Go sleep with an Arabic camel; and leave me alone. I'm watching this lady take her clothes off."** Our investigator went on to his other motel room checking exercise.

There is nothing timid about the motels that offer 'satellite movie' service. Some even have arranged to acquire, or 'create' on their own, HBO signs for their streetside billboard displays. The Western Trail

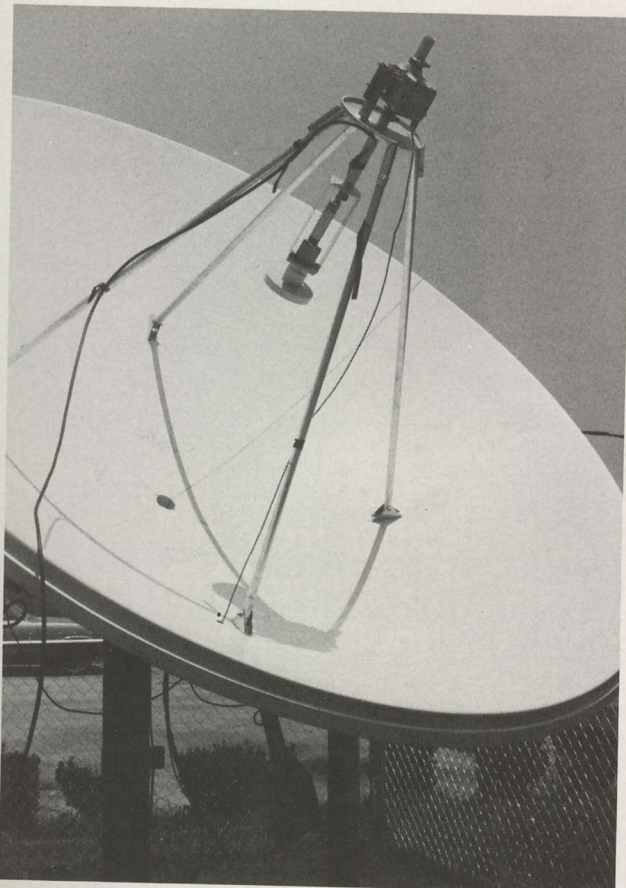


**HBO times two.** This Oklahoma motel wants everyone to know that HBO is available in the rooms. No, they don't pay for the service.



**DOWNCONVERTERS** are bolted under the dish (and through the dish); a 'form' of 'weather protection' for the system. Notice 4 GHz line splitter hanging in mid-air just to right of black (213) cable loop.

Motel (Oklahoma City) advertises "Free TV/Refrigerated Air/Connecting Baths/Room Phones/Baby Beds . . . and HBO." They accept American Express and Master Charge as well. Note in the photo that this motel apparently made their own 'HBO' sign when they got their terminal, and then later found a legitimate 'FREE IN YOUR ROOM/HBO' stand alone sign which they mounted at ground level.



**RATS NEST** of wires . . . this installation by an Arkansas firm is none too pure.



**ON TOP** of the motor drive unit, left hand edge, we have an electrical extension cord totally unprotected to operate the 110 VAC motor drive.

At least one seller of terminals in this marketplace is also offering exact-copy signs for the motels which look to the casual observer to be the real thing; signs provided by HBO. They aren't the real thing; they are 'forgeries'!

The way these systems are being sold is interesting. Most of the equipment sellers tell the motel/hotel owners that 'There is no restriction as to program availability; there is no requirement that you pay for the programming.' Others are on record as promising the motel/hotel owners 'Descramblers when HBO scrambles this fall.' Some have even written that into their sales contracts. Of course when HBO does scramble, the guy that sold the system will be laying on a beach in Mexico and the buyers will have little recourse.

Our investigator had a standard list of questions he asked at each motel spotted with what appeared to be an illegal system.

1) **'What movies are available in the rooms'?**

The answer usually was "Oh we show them all; HBO, Showtime, Cinemax, Spotlight, the Movie Channel, and Playboy." One offered "We leave you with Playboy after midnight (CT)."

2) **'How are the movies selected'?**

There seemed to be a pattern, at least in Oklahoma. Apparently the system seller had advised the buyers that with **SatGuide** they could select the best movies for the night, and then dial up the two channels they wanted (most of the systems inspected had a pair of Automation Techniques receivers fed with a 4 GHz line splitter).

3) **'Are there movie guides in the rooms'?**

The answer had to be obvious; you don't get your hands on guides when you are an illegal user; and if the motel night clerk is selecting the particular movie services from **SatGuide**, movie selections are made daily; not in advance.

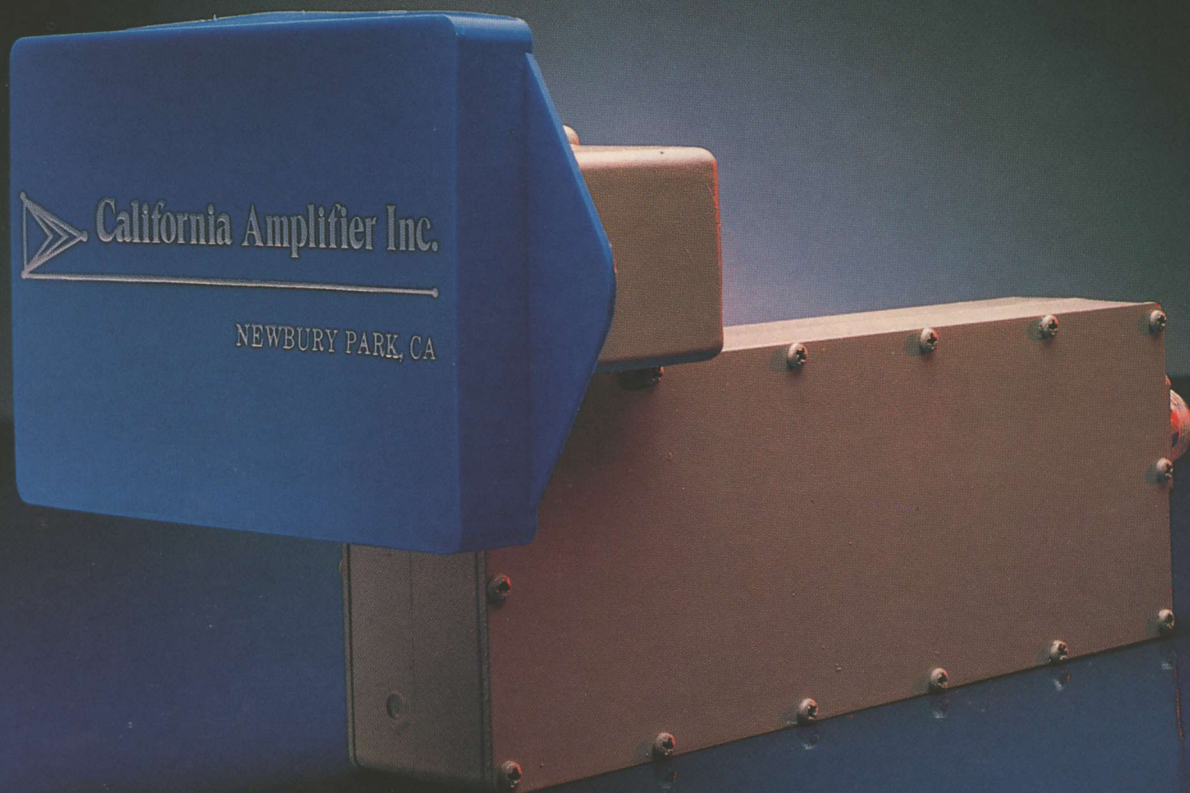
4) **'Why, if you offer more than HBO, is your sign out in front only listing "Free HBO"?'.**

Again, the answer in our limited check was uniform. "We only have HBO 'posters'." Apparently the little firm making up the forged signs is not yet cranked up to provide Showtime and TMC (etc.) signs for the motels. Besides, HBO is practically 'generic' to premium (satellite delivered) television these days; most 'travelers' recognize that quickly as a 'good deal.'

The advent of EROS and The Playboy Channel has created yet another marketplace for the illegal terminals. How it is being handled by the more sophisticated operators is of interest.

One Florida motel that has existed for years offering 'Adult Movies In Your Room/ 12 movies per day' has installed a dish and it stays parked on F4. One channel is dedicated to Playboy which gives it 8 hours per day. However, they load up each day's Playboy fare on a T160 VHS tape and play it back two more times to fill out the 24 hour period. The EROS programming is also taped and it runs seven nights

# THE STRONG SILENT TYPE.



California Amplifier. Remember that name, because we've decided to speak up for a quiet performer. Our LNA's.

We'll match our noise and gain figures with anybody under any conditions. And when it comes to

tough weather from old Mother nature, this is one LNA that can take it without talking back.

There's a good reason we think we have the best. To us, LNA's and the TVRO industry isn't a sideline. To us, it's a living.

## California Amplifier

California Amplifier Inc. 3481 Old Conejo Rd., Newbury Park, CA 91320. (805) 498-2108, (805) 499-8535, TLX 469193



Horton Townes—Chairman, Satellite America (Treasurer and Director of SPACE) Seated.

Dave Fedric—President, Satellite America (Satellite Digest 1981 Man of the Year)

Satellite America leads a new revolution in small dish antenna development. This major advancement has dramatically expanded our market by substantially reducing retail prices of quality satellite systems. Satellite America technology now makes it possible for small six- and seven-foot antennas to deliver quality video coast to coast.

Because these pioneering developments by Satellite America have reduced equipment and installation costs, our distributors throughout the nation are enjoying tremendous increases in sales and profits.

Our SA-6, SA-7 and SA-10 antennas incorporate our new *DualReflect™* Feed which relocates the LNA *behind* the dish where heat and rain are no longer major factors in system performance. Although competitors may try to copy it, only Satellite America offers the true *DualReflect™* Feed.

Our SA-6 and SA-7 antennas

# Join the Satellite America Revolution

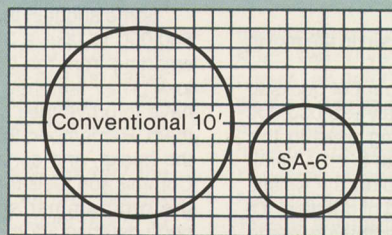
are of one-piece fiberglass construction with a special reflective surface that maximizes efficiency. Our SA-10 antenna is formed of eight thermo-compressed fiberglass panels that are perfectly matched for broadcast quality reception. The mounts on our SA-6, SA-7 and SA-10 offer similar improvements, making them the finest engineered and fabricated steel mounts available anywhere. For example, our new *PowerRing™* on the SA-7 and SA-10



SA-10

mounts includes a declination adjustment for the most precise and stable polar mount movement on the market.

The dramatic size reduction of our six-foot antenna compared to a ten-foot model is clearly shown in the graph. You can see why wind loading is reduced to a manageable level for most applications and why consumer acceptance is so much better.



Our receiver technology is just as exciting. Our innovative new SA-1000 receiver is the first of a new generation of satellite receivers to come from Satellite America. LED tuning, push button controls, stereo



and "high-tech" styling are the ingredients making this the industry's finest value.

But products alone do not define our company. Our total concept of integrated marketing, advertising and logistical support sets Satellite America apart. In a few months, Satellite America has become one of the largest satellite system suppliers in the world. We believe we supply more satellite systems than anyone else in the U.S.A. and we know ours look the best.

Beyond that, our pricing is revolutionary, enabling you to realize even greater sales and profits. No one but Satellite America offers such low pricing for quantity buyers. And this translates into growth—unprecedented growth. That's why we ask you to join us. Be a part of this growth. Call today and secure a dealer or distributor relationship for the future. Satellite America will be there leading the way.

Sincerely,

*Dave M. Fedric*

Dave Fedric, President

*Horton Townes*

Horton Townes, Chairman

**SATELLITE AMERICA**  
MARKETING, INC.  
...entertaining new ideas

## PIRACY/ continued from page 27

per week in the 8 PM to 11 PM time slot. This is now **in addition to** their single channel, stand-alone tape fed 'Adult Movie' service. Their advertising tells you 'THREE CHANNELS of ADULT TELEVISION' including Playboy and EROS.

The problem is not limited to the US; motels in Mexico and Canada are into the same sort of programming. There the situation is a tad different, however. A violation of 605 can only take place when the 1934 Communications Act is the law of the land. Mexico and Canada have their own laws, or their own approach to the law. Several Canadian motels and a Canadian apartment complex have been dragged into court in the past; as seasoned readers of **CSD** know. In each case the Canadian courts found that the motels/apartments were **not violating Canadian law** by offering 'free HBO movies' in their rooms. A similar suit was brought against a well known hotel in the Bahamas by an American movie production company. In this case the suit had legal stature because the company that owns the Bahamian hotel property is an American firm. The same hotel, had it been Bahamian owned, would have never been 'sued.' That case, by the way, has not been resolved.

Our concern here is not with the legal ramifications of foreign use of American premium programming; rather it is with those **US firms** that seem bent on creating for all of us a legal situation which we may not be able to dig out of, gracefully.

The average or typical motel that is willing to purchase such a system is small; the study done suggests the average facility has only 35 rooms. Certainly some are bigger; you see some sizeable chain names involved such as Ramada Inn, Trade Winds, and even some 'Best Western' affiliates. The \$3,000 bargain priced systems, equipped with dual receivers, a motor drive and a pair of modulators, are your basic cheap systems; far cheaper in most cases than the typical home owner would accept for the same dollars. The systems are literally being mass produced and mass installed. A section of Tulsa, Oklahoma, where seven systems from the same supplier were spotted, had identical systems installed on a mass production basis. A crew came through and 'sold' the systems. Next, a crew came through and poured the bases, installed the chain link fences (an optional extra, by the way!), and the pipe mounts. Finally the installation crew came through and threw in the antennas, the cabling, and the electronics. **Wham/bang/thank you m'am.**

And off into the sunset with a \$3,000 payment; often in cash.

The industry can adopt three approaches to the problem.

- 1) **Ignore** the practice;
- 2) **Tolerate** the practice;
- 3) **Deliberately** set out to turn the sellers/installers in to the movie folks.

Since these 10,000 systems represent a fair amount of bucks to somebody (that's \$30,000,000 in sales or approximately \$20,000,000 in hardware to those who find their equipment being used in this manner; at \$3,000 per installation), there would be at least a semi-resistance on the part of the OEMs or distributors to blow the whistle on folks they know or suspect are engaging in this sort of practice. It's one thing to build or distribute equipment; and quite something else to even have the willpower to police where it goes. Certainly anyone who wanted to install systems would find the equipment someplace if he really wanted to do so. There is a section of Georgia where Scientific Atlanta terminals are used (certainly not at \$3,000 installed each) by an illegal systems hustler there.

There is the further temptation facing a legitimate dealer who wants to be straight. How long would a fellow in Oklahoma City sit and watch illegal terminals going in at the rate of two or three per block in a heavily motel populated area, **sold by an out-of-towner**, without finally deciding he had to have a piece of that pie to survive?

The movie folks on satellite are hardly unconcerned about all of this. They have all of their apples in the scrambling basket however; hoping that their scrambling systems work, and are engineer-proof. And, that they get 'on-line' before the ratio in the Dakotas changes from 1 in 4 to say 1 in 2!

Hundreds and hundreds of illegal system locations have been identified and catalogued by firms such as Warner-Amex. This effort has been underway since the fall of 1982. What is surprising is that



**NOT UL (or HBO) approved. These guys never went to a training seminar.**

given detailed knowledge of illegal installations, where they are, who put them in, and what services they are 'stealing,' that no effort has been made to haul the violators into court. There are several theories about that one.

Some suggest that Warner-Amex or HBO are not about to spend \$30,000 to take a 35 room motel in Memphis to court. First of all, smarting from the Canadian court decisions, they know they might lose. They feel they would win, but they also know that they would have to prove their case in a court where FCC rules would not help them. Remember, the FCC told the world that while Section 605 is on the books, and certain acts are clear cut violations of that act, the Commission feels that if a programming wants to protect his product, **the programmer should take steps to scramble the service.** A good defense attorney would quickly get the FCC's "Scramble if you want protection" policy read into the courtroom record. Given that kind of official policy, a court just might not go along with attempting to update a 39 year old law. And if such a case 'lost' in court, well . . . that would be tantamount to approval of continued signal theft.

Another possibility suggests that lacking a clear federal mandate the cable programmers and cable firms may be looking to new, modern state statutes to tackle this problem. The Oklahoma legislature, for example, adopted a new law this past session which makes it illegal anyplace in the state to 'steal' **any** cable programming. The law was drafted to be as broad as possible. On the surface it looked like a law to allow the cable firms to prosecute anyone who tapped into a cable service line without paying for the service. A more careful reading suggests that the same law might be a useful tool against the motels on Lincoln Blvd. in Oklahoma City who are clearly using HBO (et al) signals and services without paying for these services. A court case is in the works on that one, and if it is decided in favor of the cable/satellite service firm, it would then serve as a model to other state cable associations across the country. Remember that the first

group that loses in a situation like this are the cable programmers on satellites; the next big losers are the cable firms that lose connections.

Like it or not, the private TVRO terminal industry is stuck right in the middle of this one. Our equipment is being used, and our marketing

techniques are playing an important part in what is happening. Most of those in the industry may have nothing to do with installations such as this . . . **but we will all pay the price.**

## CAN/AM '83

### June 24/26-Minneapolis

The big action at the first Canadian/American TVRO show, held at the Minneapolis Radisson South Hotel in Minneapolis over the weekend of June 24-26, was not on the exhibit hall floor. It was not in the ample antenna lot. It was not in the lecture hall. It all happened behind closed doors. The future of shows in our industry, and the trends in hardware, was at stake.

STTI had billed the Minneapolis show as a 'big event' and it hoped that the close proximity to Canada would draw hundreds if indeed not thousands of TVRO delegates out of Canada and into the American marketplace. It did not exactly turn out that way. The crowd was light, and from all accounts the Canadian market, supposedly poised on the edge of taking off into the hundreds of thousands of home units per year, is sailed on an uncharted course. Several Canadian delegates we talked with described the present Canadian market as confused and slow. None said the market had held up after the initial pronouncements of Communications Czar Fox that home and semi-commercial taverns were now legal (see **CSD** for April, 1983).

Many Canadians told stories of long waiting lines in the dog days of early March, immediately following the Fox announcement; people actually lined up in store fronts waiting their turn to buy a TVRO! The same Canadians told that as March turned into April, and the earlier Fox announcement became muddled by later announcements that seemed to be back filling on what he **first** said, the lines shortened and then stopped altogether.

**"It was an unbelievable few weeks; there was no way the industry could handle the interest. Equipment simply did not exist to meet the demand. There was at least one 'super-dealer' in the Toronto area who peaked out at 200 systems installed per week. He had an entire fleet of trucks pressed into service installing packages as fast as they could get their hands on the gear. Forty foot semis were rolling across the border into the US hauling back tons of antennas, receivers, and LNAs. It was fantastic!"**

And then it quit. The super dealer? Bankrupt.

Actually, law suits and broken promise stories are abundant in the Canadian TVRO world at the present time. Many were caught in the dog-days of March and money and equipment flowed freely from border to border; and across the border. Not a few of those who found themselves dealing in hundreds of system packages per week took a bath; a bad bath. The sales spurt ended as rapidly as it began in many areas, leaving equipment stockpiles loaded in semis, checks at banks with payments stopped and very nervous entrepreneurs. The Can/Am '83 show would have been far more successful if STTI's Schneringer could have persuaded Canada's Fox to announce his intentions on June 15th rather than early in March!

The Canadian TVRO industry is presently in a period of adjust-

## MEMORABLE, but CONFUSING



ment; fine tuning the remains of the great TVRO rush into an industry which can survive with slow growth and less hectic sales projection curves. As one Canadian so aptly put it **"There was a tremendous pent-up desire for TVROs;** especially for taverns and small motels and other commercial establishments. When Fox said it was 'OK' to have one, these people streamed into the shops looking for systems. I'd describe these people as law abiding, decent business people who had watched in some anguish as their competition installed 'illegal TVROs' and the pub hopping customers changed their drinking habits and hung out where ESPN or USA Network was dishing out the sports. When Fox said 'Go' they all ran. They were pre-sold, waiting only approval from government to enter the race. They did, and like a gold or land rush, pretty soon it was all over."

**Nelson Ethier** of Commander Satellite Systems (Mississauga, Ontario) recalls that the national Canadian media made something of a 'media event' out of all that happened. "David (Brough) and I took shifts being interviewed by local Toronto stations, the CBC and everyone else that could find a camera, a microphone or a notebook. It got to be a game; we'd do an interview at 9 in the morning and see it come up on the noon news. Ten minutes after the news was over the lines out front doubled in size. Then we'd do another interview in mid-afternoon and see it run on the 6 o'clock news. Sure enough, the lines started forming all over again. **It was sheer lunacy and madness!"**

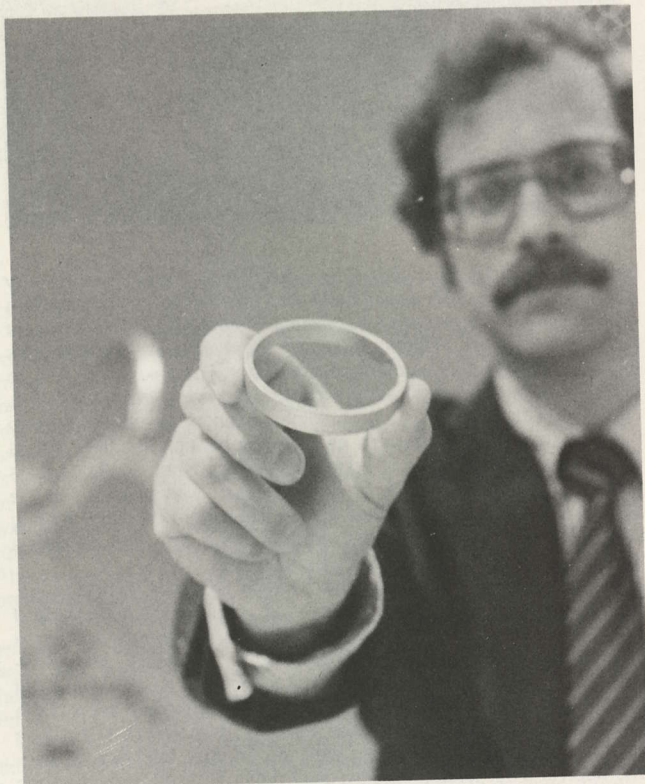
None of the Canadian media followed the survivors of the March TVRO rush to Minneapolis. In fact, other than trade media from our own industry, the Minneapolis show attracted no media. For the first time in quite some number of shows the TVRO gang slid into town, set up its antennas, did its thing, and disappeared without as much as a

bubble in the local media scene. TVROs are apparently just not newsworthy anymore. Or, the show had such a 'low-profile' that nobody knew the show was in town.

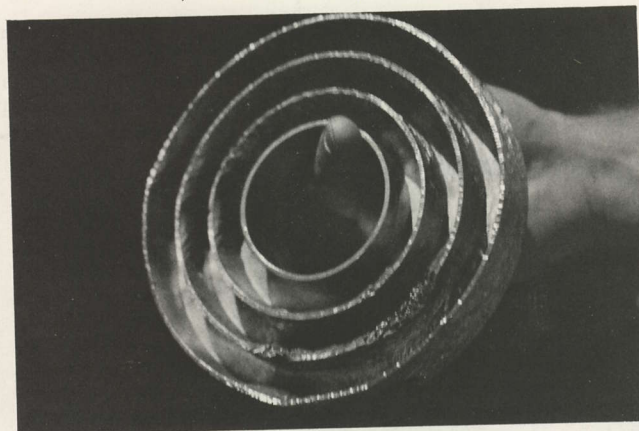
The marked reversal from high attendance to low attendance, Las Vegas to Minneapolis, was noticeable to everyone on hand. STTI's Schneringer, meeting with the SPACE board (see **Coop's Comments**, this issue) the evening before the show opened asked to be allowed to return to his show duties remarking **"Every show is a gamble; and I'm worried about this one"**.

All of the available booth spaces were sold. Only a few did not show up and there were those exhibitors who settled for lack of space for 'parking lot only' displays; missing the 'big action' of the exhibit hall area. Actually, they may not have missed too much. Several exhibitors complained "the only activity we are seeing is from fellow exhibitors; **where are the buyers?**". Another exhibitor asked to a group of assembled exhibitors blocking an uncrowded aisleway **"Anyone want to take my Nashville booth off my hands? I don't want to go through this again. Orlando is plenty soon enough for me!"**.

It was not just the light attendance, and the shortage of Canadian buyers that bothered the exhibitors. The sheer number of shows was becoming to be a serious topic for conversation. Jim Rothbarth of STS. **"When we had three shows a year, we were flat out to come up with a 'hook', a nice neat new feature which we could say was new and fantastic, for each of the three shows. When we got more than three shows, it became impossible to find a 'hook' for each show. How many times can you re-design a receiver? How many times can you change the front panel? How many times can you think of a brand new**



**JOEL LEIPZIG** of Chaparral Communications displays the 'magic ring' created by Chaparral to convert standard Super Feed packages into .3 region f/D feeds. Your choice of brushed aluminum or anodized gold. The late '83 antenna 'wave' is decidedly to the .3 region dishes.



**GRILLED FEED?** This popular series (non-metallic) feed got hot and then melted when the sun aligned with the satellite back in March. Canadian supplier David Brough reports he is now having second thoughts about using non-metallic feeds on his systems. How do you insure a feed against melt down?

way to introduce the same old thing and be the 'hit of the show'?"

Good questions. We saw no NEW 'hit of the show'. Some came close, but they just didn't quite make it. Bob Taggart of Chaparral. **"Actually, we come here and hold 'court'.** We don't come to show off products or make some new startling announcement. We just come to be here." Not everyone has the 'market share' that Chaparral has; not everyone can afford the luxury of 'holding court'.

Schneringer himself defended his show with the terse comment "We do what we know best, and we do it the same way each time, trying to refine it just a little to improve it. Gloria and I work very hard to make these shows work."

Maybe, just maybe, doing it 'the same way each time' is no longer enough. Maybe not doing it at all would be a better marketing move. Dave McClaskey of Intersat. **"A show is like sex;** the first few times it is great. After a while you get bored or tired with the same thing. You have two choices; abstain, or change partners".

The 'temper' of the show was not assisted by the out-in-the-open 'warfare' between STTI and SPACE. As Coop comments here this month (see page 4), there were 'dirty tricks' and not so subdued shouting matches between the principals on both sides. With Minneapolis activity lighter, far lighter, than had been expected, everyone was just a little bit on edge.

Jim Rothbarth's 'show hook' ploy was evident in a few places. **Steve Bland's Hoosier Electronics** has joined forces with Regency Electronics and Minneapolis was the stepping off ground for a brand new, super-low priced 8 foot complete package which ten of the major distributors will be handling and selling this fall. The heart of the system is a new electronics package from **Regency**; cheaper than most of those brought out previously. Regency should know how to do it; they have been involved in VHF and UHF receiving (and transmitting) equipment for several decades. Their 'Scanner Radio' products are legendary. To make the package really complete, for Hoosier, Bland has gone to industry consultant **Taylor Howard** to bring out a new .3 f/D region dish and a special, new, Howard/Chaparral feed system. Bland intends to drive the package price down, down, down and with the help of Regency and Chaparral they are off to a good start.

**Anderson Scientific** teamed with Canadian distributor **Russ Walsh** to demonstrate, very effectively, how the low-priced Anderson block down conversion system can be teamed with both cable and through-the-air distribution to provide dozens or hundreds of homes with TVRO service off of a single TVRO dish. The impact of the Anderson receivers and Walsh rebroadcast electronics will probably be six months or more sinking in. Many Americans seeing the package had a difficult time understanding that **they could not** take such a system home and serve the neighborhood (FCC rules **don't allow**

# COMPLETE EARTH STATION SYSTEMS

## Commercial or Residential

### New Products:

Alpine 10 ft., 11 ft. & 13 ft.  
Fiberglass Antennas/Amplica RC20  
Infrared Receiver/Auto-Tech GLR808  
Infrared Receiver/California  
Amplifier/Jensen Antenna/KLM  
Sky-Eye IV/Luxor Receiver/Para-  
clipse Antenna/The Tweaker dish  
positioner/Vector MSS Wireless  
Infrared Program Positioner/"World  
of Satellite TV" handbook

### Distributor of:

ADEC/ADM/ALPINE ANTENNA/  
AMPLICA/ARUNTA/AUTOMATION  
TECHNIQUES/AVANTEK/AVCOM/  
CALIFORNIA AMPLIFIER/CHAPARREL/  
COMTECH/DEXCEL/DRAKE/EARTH  
TERMINALS/HOUSTON SATELLITE/  
JANEIL/KLM/LOWRANCE/LULY/  
MICRODYNE/PARADIGM/PILOT-  
VIEW/SAT-TEC/STANDARD/VECTOR/  
VIDARE and more

### NO COST ORDERING:

To ensure the QUICKEST DELIVERY,  
use our TOLL-FREE NUMBER,  
SIX DAYS A WEEK / (800) 833-4485  
For prices or technical information call us  
at (518) 783-0088.



**NATIONAL SATELLITE  
COMMUNICATIONS**

Plaza 7 • Latham, New York 12110 • 518-783-0088



## CAN-AM '83/ continued from page 32

such rebroadcasting systems). Canadians, especially those from rural areas where Canadian DOC (FCC) types never venture, were far less concerned about using such a package when the national regulations did not allow such use. **Readers are well advised to remember** that rebroadcasting, no matter how low power the rebroadcast transmitter may be, **is illegal within the United States (and Canada)**. And that while rebroadcasting is illegal, the same Anderson receiver packages work (as originally designed) just fine for cable distribution to dozens (or hundreds) of homes. Another source for the Anderson gear popped up; **LOCOM** (the LNA people) had a small display of their own (licensed) version of the Anderson product. Keith Anderson told us that with demand for the product so high, he felt compelled to get more people into the manufacturing of it as quickly as possible. A plant in Mexico, to increase production, is coming on line shortly.

**ARUNTA** Engineering had a new low priced satellite receiver; Ed Grotzky still feels that each major show deserves a major new product addition to the line.



**BOMAN Industries** had several new feeds including some new .3 f/D feeds which Bob Maniacci feels is the next wave in antenna design technology. By our inspection, Boman now offers the most complete line of feeds in a variety of polarization switching schemes in the industry.

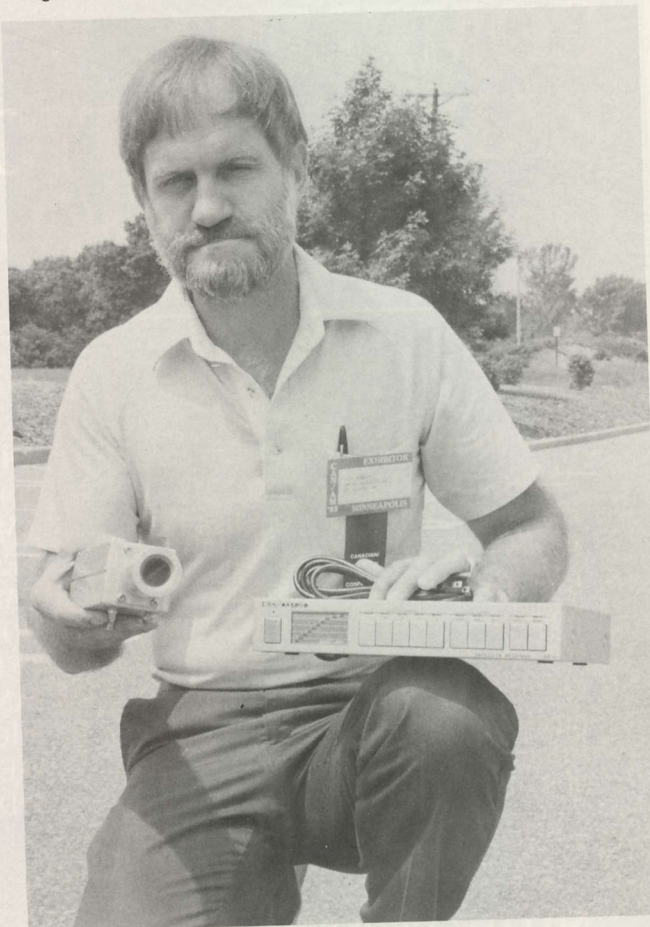
**Chaparral Communications** downplayed a new series of 10.7/11.7 and 11.7 to 12.7 GHz 'super feeds'. Machine milled out of solid blocks of aluminum (they will probably become collector's items), those who have aspirations of peak performance at 11/12 GHz would do well to check the people who turned feeds into a glamour product at 4 GHz.

**DX Communications** and C. Iton Company, along with Lewis Larsen using Odom Antenna surfaces, displayed reception from the (11)/12 GHz birds. Modest interest was evoked. Another one on hand with a very nicely done 12 GHz package was Doug Dehnert of USS. The Maspro 12 GHz receiver Dehnert kept out of public view will be available in North America about the time you read this. Larsen also found another 'hook' to get attendee interest; he turned a dish the 'wrong way' and tracked the **Russian Molniya** satellite hovering over Hudson's Bay in northern Ontario for those who wanted to see what Moscow television looks like. Unfortunately, very few knew of the demonstration and thus missed an opportunity to learn about non-geostationary/Clarke orbit belt birds.

**General Instrument** and **Intersat** seemed to be over the hump with the new IQ-160 receiver package and all systems were 'go' in Minneapolis for the new ultra sophisticated package. One of the new packages has been on Provo for about a month as we write this and we anticipate a full blown review of the system in our September or October issue(s).

Antenna drives and controllers in particular were new and in abundance. New packages from **Houston Satellite Systems**, **TEL-VI** and **Draco** caught our attention. In particular, although we reserve

any real judgement until we've had the opportunity to check them out here on Provo, the new units from **DRACO** (Aimer 1, Aimer 2), available through **Delta Satellite**, seemed to be exceedingly well thought out.



**USS's DOUG DEHNERT** with a sneak preview of the Maspro 11/12 GHz package. Among the very unusual features; field switchable right hand circular, left hand circular, or linear feeds by simply unscrewing the feed 'tube' and moving around (or taking out) the dielectric 'slab'.

**Kaul-Tronics** has come out with a new 10 year warranted mount that includes all stainless steel hardware. This impressed us since



# ANYWAY YOU LOOK AT IT...

## ADM HAS YOUR ANTENNA!

**AND YOUR TVRO SYSTEM.** Rapid delivery on ADM's super-efficient 11 foot polar mount antenna (includes remote controlled polarization rotation system as well!), plus, packages are available for complete systems including LNA, 24 channel tuneable receiver and cabling. Why wait in a long line when you can get the best, today!

**A SUPER TVRO ANTENNA SYSTEM.** High quality panelized aluminum 11 foot dish and steel polar mount. Dish weighs approximately 200 pounds, mount 265 pounds. Precision designed, easy installation, zinc chromate base primed and heavy duty white top finish. The rotating feed is standard! Easily shipped and installed. Choice openings for dealers and distributors.



**Antenna  
Development &  
Manufacturing, Inc.**

P.O. Box 1178  
Poplar Bluff, Mo. 63901  
(1-314-785-5988)



## CAN-AM '83/ continued from page 34

almost nothing that goes outside in any industry gets a ten year warranty these days. **Satellite Reception Systems, Inc.** impressed us with a new single post mount that they claim is universal in being capable of adapting to virtually any dish on the market. Since finding a mount that can be used with more than the 'designed-for-dish' has been a problem in the industry, we wanted to bring your attention to this bit of creative engineering. Oh yes. They guarantee the mount unconditionally for five years.



Many (many!) years ago we produced and distributed a few hundred copies of an 11 minute or so BETA/VHS videotape that was designed to help dealers introduce prospective customers to the wonderful world of TVROs. That tape has been out of circulation for nearly two years now, and we were delighted to see **Shelburne Films** (54545 S.R. 681, Reedsville, Oh 45772) distributing a new 12 minute tape that updates the whole process. If you are a dealer who is having problems explaining to prospective customers what TVRO is all about, or how the system works, we highly recommend the 'Satellite TV Basics' tape from Shelburne. Production quality is excellent, scripting is top notch and the message is clear even to the layman.

An award for the classiest new products catalog should go to Delta Satellite, Inc. **Sandy Wirth** has turned the mumbo-jumbo world of satellite component parts into a virtual textbook for the new dealer or do-it-yourselfer. Carefully worded text, excellent artwork, and even a full page form urging readers to join SPACE makes up a 'catalog' that is at the present time second to none. For those into studying catalogs, the Delta product is a must.

A Canadian group that sees the need for a national Canadian TVRO trade association surfaced in Minneapolis. They were not met with open arms by the American version, and apparently even the Canadians are having some difficulty figuring out that they need to band together to protect what little territory they have managed to grab onto to date. **C-SPACE** is the 'new Canadian society for the benefit and advancement of the satellite communications community'. It is a non-profit group with headquarters in Regina (199 North Leonard Street, Regina, Sask. S4N 5X5) and regional chapters forming in BC, Yukon, Alberta and the Northwest Territories, Saskatchewan and Manitoba, Ontario, Quebec, Newfoundland/Labrador and Nova Scotia, and New Brunswick and Prince Edward Island. Recommended.

For those who wonder how small, how compact, how simple (and ultimately how cheap) 4 GHz TVROs may get, there was a hint of the future at **Newton Electronics, Inc.** (2218 Old Middlefield Way, Mountain View, Ca. 94043). NEI displayed a new module that you can fit into your shirt pocket without making even a bulge. It is about the size of a half dozen quarters placed side by side and you send 70 MHz IF signal into one spigot and get baseband video out. Included in the encapsulated slim-line package is a high gain 70 MHz IF amplifier, SAW filter, FM limiting, and direct 70 MHz wideband PLL demodulator. There are nine stages of limiting (eliminating the need for AGC) and a signal level meter drive output. The TVRO receiver, based upon this technology, will be no bigger than a pack of 100 mm cigarettes. Tuning? One

pot to adjust the 70 MHz center frequency.

Dish sizes varied from some 20 foot monsters to some 4 foot midgits. And the pictures fell in between those two extremes. There **was** one exceptionally good working four foot system and we are sure they are disappointed not to see their work extolled here. Frankly, with the now common knowledge that satellite aging and closer satellite spacing is going to render all of the smaller size dishes unfortunately inoperative over the next few years, any further 'hype' for small dish products would be out of place here. At least at this time. If somebody wants to **prove** to us that a 4, 6, 7, 8 or 9 foot dish has been so



creatively constructed that bonafide antenna test range measurements prove it will work with 'aged' transponders AND shorter/closer spacing, we'll be happy to turn several pages over to the product in a future issue. Until then, the toys are interesting but not a subject we wish to cover in print.

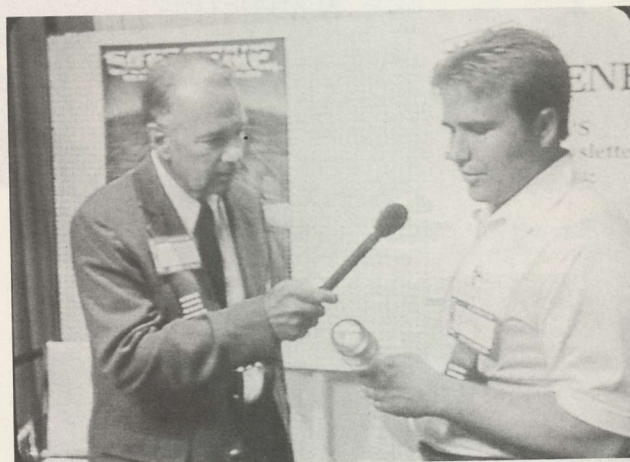
#### CAN/AM '83 Summary

The Minneapolis show will be memorable not for what happened, but more for what did not happen. It was **NOT** a bonanza of Canadian buyers. It was **NOT** a playground for creative, new products. It was **NOT** as friendly a gathering as those in the past have been. It was **NOT** well attended.

Some exhibitors claimed great sales. Some claimed new records for product movement. Some spent alot of time in the pool-side bar.

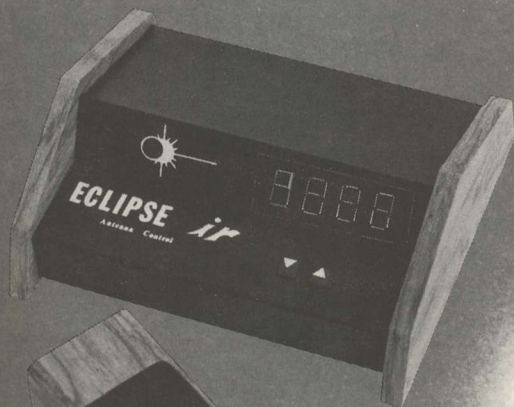
The exhibit booths continued their escalation towards greater professionalism and better equipped booth staffing personnel. The show was relaxed, if tense, and for the first time in many shows you could take the time to engage in lengthy conversations with people who had more to say to you than 'Hello/Goodbye'.

After a string of great shows, STTI stumbled abit and had a 'good show'. Nobody can fault STTI for that; you can't be a winner everytime you enter the ring.

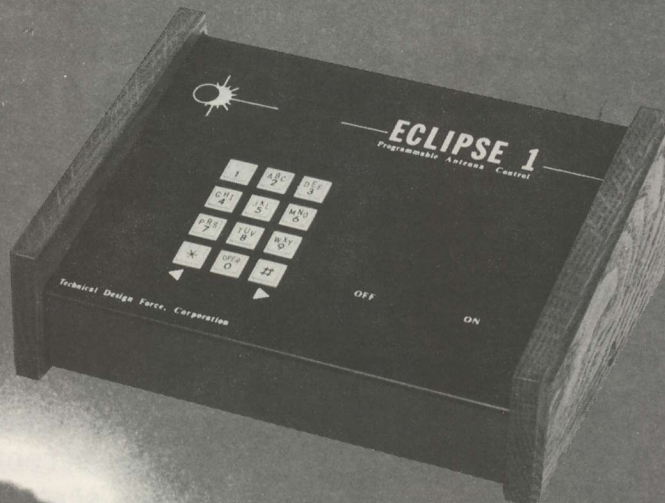


# ECLIPSE<sup>TM</sup> ANTENNA CONTROLS

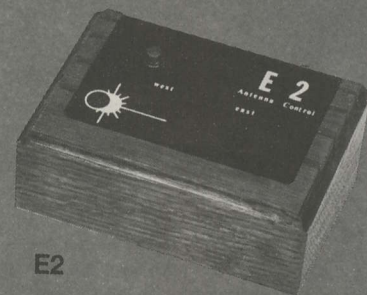
Add The Finishing Touch To Any System



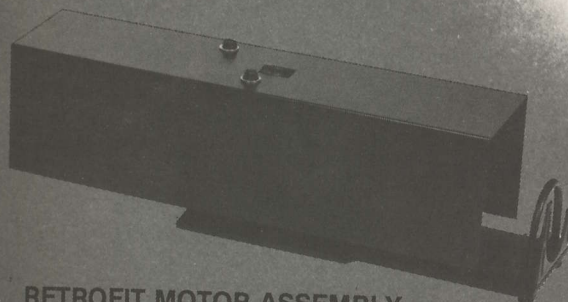
ECLIPSE *ir*  
infra red  
remote



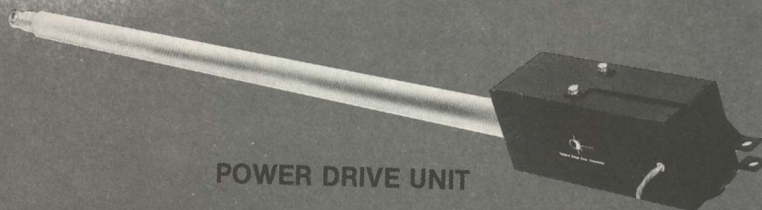
ECLIPSE 1



E2



RETROFIT MOTOR ASSEMBLY



POWER DRIVE UNIT

Whatever you desire in antenna control TDF has it. WE offer the programmable ECLIPSE 1, MANUAL E2, and now the infra red remote control ECLIPSE *ir*. TDF Corporation also offers motor drive units in long stroke, short stroke and retrofit configurations.

To complete your system, contact us or ask your dealer about the "ECLIPSE" antenna controls.



**TDF**  
CORPORATION

TECHNICAL DESIGN FORCE CORPORATION  
P. O. Box 156  
Neosho, Mo. 64850  
(417) 451-7404

*Oldest and Largest Manufacturer of Programmable Antenna Controls*

## THE ROOTS OF TRVO

## (Part Eight)

A 20 inch screen, for example, would require a disc more than 48 inches in diameter, protruding not only far to the side of the screen itself but far above the screen. DuMont had hoped that this point, and the fact that *CBS demonstrated no receivers* with larger than 12½ inch screens, would become *apparent* to the Commission.

When it did not, DuMont's Dr. Goldsmith asked for and received time on the program for a "demonstration". At the appointed time DuMont personnel rolled in a huge cart. On the cart was a 700 pound apparatus consisting of a color spinning wheel, motor to turn the wheel, and the associated receiver. The machine, carefully constructed to be representative of the true situation and as modern as the CBS color wheel art would permit, measured 6.5 feet long, 4.5 feet thick, and 4.5 feet high. The end result was 700 pounds of motor, whirling wheel, and a (then) "giant" 20 inch picture

tube. When the huge 4 foot-plus wheel began to spin at 210 miles per hour, the load on the electrical circuit in the FCC hearing room became too great and the fuse blew throwing the system into darkness!

FCC Chairman Wayne Coy became irate at this point and shouted at Dr. Goldsmith to "*stop this side show*". FCC Commissioner Frieda Hennock also blasted Goldsmith and called the demonstration "*a ridicule of CBS and completely unfair to CBS*." Chairman Coy called a recess and the room cleared. Two Commissioners, Jones and Sterling, stuck around as Dr. Goldsmith re-ignited his machine. Over the roar of his 210 mile per hour 48 inch-plus whirling disc, Dr. Goldsmith told the two remaining Commissioners, "*We just got sick and tired of all of the claims about easy conversion of present receivers to CBS type color and decided to show folks how ridiculous such conversions really are.*"

There were also cooler, calmer heads present. One, David B. Smith, Vice President of Research and Development for Philco, told the Commission the view of his company regarding the establishment of color TV standards:

**"The standards must be such as to permit**

**ABOUT this series;** CSD began this series in the middle of 1982, bringing back to print portions of a nearly 100 page report written and published by Coop in the mid 70's; in **CATJ**, a cable trade magazine. The 'Roots of TVRO' really begin with the 'roots of fringe area television'; the way the (U.S.) FCC handled and allowed television expansion in the 50's and 60's, and the deep seated frustrations rural Americans developed about television reception nearly 30 years ago. If you understand where American terrestrial television 'went wrong,' you will better understand the clamor to accept and embrace TVRO service in North America.

the public, individually, and at their personal option, to be able to have either black and white or color reception with no loss of programming service either way. Both color and black and white must be transmitted on a single set of standards so that each type of signal can be received interchangeably on either black and white or color receivers. The standards must provide a quality of service at least as good as that now provided by the present commercial standards. The continuity of existing service to receivers in the hands of the public must be maintained. Any proposal of non-compatible standards must include a detailed program to accomplish this purpose. In arriving at these standards there shall be no experimenting at the expense of the public. The Commission must assure the public that the system has been thoroughly proven before authorization of commercial service."

Seemingly, this type of statement *should* or would *have come* from *not* a member of the industry, *but from the Commission itself*. Alas, it did not, and aside from its historical perspective on the right and wrong ways to do things, it apparently had *very little impact* on the Commission at the time. *It was probably too sane, and made too much sense to be seriously considered!*

Because the RCA and CBS systems were viewed by the Commission under different circumstances, the Commission then decided they would spend more of the two applicant's (and public) money. They would ask for so-called field trials, side by side comparisons. Thus the stage was set for the next round of the side show.

Throughout the tests the quality of the color was the ladder rung on which the Commission stood. *Public interest* seemed to be *the interest of getting good quality color*, and no one *seriously* considered the non-compatibility as-

pect of the problem.

Most of the official remarks sound pretty much like this quote:

"The images were far brighter and truer in color fidelity than in earlier tests. Operation was stable and completely free of flicker."

During the course of the field trials, others became embroiled in the controversy. The RMA (Radio Manufacturer's Association) put out a booklet which was titled "*Is Color Television Ready For The Home?*". This was a blunt, no-holds barred booklet that stated:

"...the majority of television set manufacturers urge that no color broadcasting standards be approved by the FCC until all proposed systems have been thoroughly field tested. When standards are set, all future improvements must be within the framework of the basic original standards. The original standards must be sound, and suitable for decades to come. The proposed CBS system uses only 405 lines for picture definition; this is a 45% reduction in picture detail and clarity."

As the tests ground on, Dr. Allen B. DuMont chastised Senator Johnson and FCC Commissioner Robert F. Jones. The Doctor said:

"Commissioner Jones condemns private interests who question the Commission's handling of color TV standards to date, simply because these private interests think it would be a grave mistake to foist unsatisfactory color on the American public. The Commissioner condemns more than 100 manufacturers of television receivers, television broadcasters, and television transmitter manufacturers because we think it a criminal mistake to make the future allocation of additional channels for black and white wait for a decision on the matter of color. A truly intelligent and lasting decision on the matter of color may take years, and spokesmen for our industry do not think the public will be willing, or should be forced, to wait these years to enjoy adequate television reception."

Of the two primary contenders for the color prize, Dr. DuMont said:

**"Neither system is adequate. In one the color changes every minute (RCA) and in the other the color fidelity is poor (CBS)."**

By mid spring of 1950, the hearings had ground down to who could *claim* they would do the most for the public. NBC's John H. McDonnell told the Commission his network would immediately start regular colorcasting from New York. McDonnell stated his network would extend color service to places like Providence, Philadelphia, Toledo, and Davenport by the end of the summer (1950). CBS's Stanton promised 20 hours of color programming per month within 90 days of authorization of their system.

McDonnell countered Stanton's hours claim by stating:

**"Broadcasters would be unable to transmit color during the choice (i.e. prime) evening hours with the CBS system because they would lose virtually all of the black and white only audience, something that is not economically feasible when programming must be paid for by advertising dollars."**

In May RCA's General Sarnoff created a bit of a stir when he stated that if the RCA system was approved, RCA would share all of the data with every manufacturer and anyone would be free to manufacture and sell compatible system color receivers. This took CBS back a step or two because they had been quite blatant about their plans to be the primary source of their own receivers, and to allow secondary royalty paying receiver sources to develop only after they were tooled up first.

Finally it all came to a head. Over 10,000 pages of testimony, and 250 ex-

hibits of material, diagrams, data, and engineering studies. Very late in the race Colonel Donald K. Lippincott, representing the California firm CTI, shook the FCC with several statements. He said:

**(1) The RCA system and the CBS system were too complicated for the average service technician to handle or the average viewer to adjust;**

**(2) The CBS system would be financially difficult if not disastrous to all but a handful of the largest television manufacturers;**

**(3) And why has no one looked into the matter of interference in color reception?**

The last point created a first class rhubarb. RCA and CBS in particular moved that CTI field experience (they had been testing their system over KPIX in San Francisco and perhaps had *more actual on-the-air time* with their system, through a *non-test* facility, than CBS and RCA combined) *not* be allowed into the record. The contention of RCA and CBS was that *no one else* had conducted field trials in medium signal and fringe areas, as CTI claimed to have done, and the CTI results of these tests should not be considered as evidence when they *alone* had conducted the tests. CTI's interference evidence was quite harmful because it showed that color transmissions were *much more susceptible to interference* (man made and weak signals) than black and white transmissions.

This plainly upset Chairman Wayne Coy who recalled quickly that all of his problems with an *allocations freeze* had come from the *emergence of interference* as a limiting factor in station coverage zones. He quickly saw the potential of a whole *new* set of interference problems (now *color* related) leading to another allocations fiasco.

That nobody had sought to prove color's transmission characteristics *outside of the secure in-town reception areas* is incomprehensible today. It accentuates however the Commission's concern *only with* "color fidelity" and their almost complete ignorance of the *real* questions involved in approving a color transmission and reception standard.

After the clamor died down in the hearing room, Chairman Coy remarked:

"I would like to comment that this exhibit brings into sharp focus the difficult problems which the Commission faces. It is apparent that a successful television system cannot be maintained unless a sound allocation (of channels) program is established. A sound allocation program is not possible unless the Commission has adequate interference data. It has been the consistent experience of the Commission in this and other proceedings that it is virtually impossible to get the parties to submit adequate interference data. So far as the parties are concerned, no adequate interference data was offered by any of the parties at the outset. Moreover, when, after extensive prodding by the Commission, the parties did produce some interference data, it is apparent (from the CTI exhibit which was extensive) that not nearly as much effort and ingenuity went into the preparation and presentation of such evidence as compared with other aspects of the parties' cases.

I hope that this proceeding will teach all of us the importance, not only to the Commission, but to the industry and the public, of securing and offering adequate data on interference, so that sound decisions can be made on an allocation basis, under which the (TV) industry can build with reliance on the fact that unforeseen interference conditions will not severely limit the service areas which have been anticipated, and thus deprive many rural viewers of service. People who live in rural areas are important people."

Seemingly, the Commission now had

*plenty of reason* to delay for quite some time the decision on color. To restate them now:

- (1) The leading contender system, CBS, was *not* compatible; people could *not* watch CBS color programs in black and white without special converters;
- (2) In spite of the CBS statements to the contrary, the CBS color system was *limited* to relatively small picture tube sizes, and, as DuMont demonstrated, even 20 inch pictures with the giant whirling wheel were impractical;
- (3) The two electronic systems, CTI and RCA, had made dramatic progress in the 1949-1950 one year period. Even the Commission was aware that every week brought improvements;
- (4) The CTI and the RCA systems *were compatible*; that is, people could see colorcast programs in black and white on the existing nearly 9,000,000 receivers;
- (5) Based upon CTI evidence, the question of color picture quality in areas outside the principal city (where interference and weak signals could be a problem) *was largely unresolved*. CTI said that pictures in rural areas went down hill faster in color than in black and white and that satisfactory service areas for color were much smaller than with black and white.

Seemingly, with the exception of Senator Johnson, most everyone could agree that a further delay was in the best interests of the public.

So it was *with some surprise* when in September of 1950 that the Commis-

sion released a 48 page "memo decision" that awarded the color prize to CBS.

The Commission, by a 4-2-1 vote, approved the CBS system, but left a carrot dangling for CTI and RCA. They told the two firms, "You have until December 5th to demonstrate how improvements in your existing color will bring it up to the 'grade' of the CBS quality." In the 48 page memo, virtually *no mention* was made of the compatibility problem. What was said was:

**"If a compatible system that produced satisfactory pictures was available, it would certainly be desirable to adopt such a system. Compatibility would facilitate, for the broadcaster, the transition from black and white to color broadcasting and would reduce to a minimum the obsolescence problem of present receivers. However, no satisfactory compatible system was demonstrated at these proceedings."**

Senator Johnson did what you would expect him to do. He made public a letter to Chairman Coy in which he said:

**"The decision brings very close the day when this great new improvement will serve the American people. I know every effort will be made to push forward rapidly the allocation decisions so that television will be made available to many more millions of citizens who are waiting impatiently to have television in their homes."**

Dissenting on the rush-choice of CBS, Commissioner Frieda Hennock declared:

**"Incompatibility will produce a serious problem for the broadcaster, and its effects will very likely be felt by all television viewers. To the extent that there are receivers in the hands of the public which are unable to receive field-sequential color broadcasts, every program broadcast under those standards will entail a loss of audience for the**

**broadcaster. The decision to produce a program in color will be a difficult one for the broadcaster if it means that the program will become less saleable."**

While the shock of the decision was wearing off, and RCA and CTI were working 24 hours per day to try to make the December 5th reprieve deadline, someone noticed some fine print in the 48 page memo-decision. It said that within 60 days of the finalization of the new color standards rules, that *all receivers* produced for shipment in interstate commerce would be *required* to have a built-in capability to "switch" between standard 525 line black and white and 405 line field sequential color (in black and white). This meant that all sets would have to be capable of receiving standard black and white broadcasts in black and white, *and at the throw of a switch*, CBS colorcasts in black and white. This was a "conversion" which CBS had earlier stated the average set owner (by now there were 9,000,000 sets in use) could make at \$75 per set.

*The receiver manufacturers came unglued. "We can't change over that fast" most cried. Others questioned the authority of the Commission to force an extra cost receiver standard into receivers. CBS considered the ruling a victory.*

When the receiver manufacturers brought their case to the FCC, a new bit of intrigue developed. FCC counsellor Harry Plotkin (we will hear more from Harry later!) let the cat out of the bag when he announced that FCC Engineer Ed Chapin had constructed in the FCC laboratory a receiver which *"featured automatic adaption from 525 line black and white*

to 405 line color-shown black and white", thereby eliminating the need for a manual switch. If the receiver manufacturers were upset when they went into the session, they became irate when Plotkin dropped *that* bomb.

The RCA attorney arose and said:

"This development of Mr. Chapin's constitutes what might be considered an improvement in the CBS system. The Commission has set itself up in a judicial capacity to hear evidence between 2 or 3 competing systems. Now the Commission's own staff comes forward with an invention which seems to be an improvement of the system proposed by one of the litigants. It seems to us as if we have a situation where the judicial group is assisting one of the parties in the contest. We think this is inconsistent with the judicial position which the Commission should take in these proceedings."

Chairman Coy showed a flash of temper as he rebuked the RCA attorney, defending the role that the Commission had played to date. He then explained that the Chapin circuit was going to be the subject of a patent application, said patent to be *owned* by the United States government. The exchange left an extremely bitter rift between the Commission and the receiver industry, not to speak of RCA who felt that the Commission was aiding the CBS proponents by assisting them to develop their system.

Within weeks two law suits were filed, both landing in the U.S. District Court in Chicago. One suit was filed by a TV receiver manufacturer (Emerson) and another by RCA. Both suits charged:

"...that industry, broadcasters, and set owners stand to be seriously affected by this ruling of the FCC; ...the order is contrary to public interest, is arbitrary and capricious, and exceeds the authority of the Commis-

sion; ...the order is not supported by the evidence."

The purpose of both suits was to seek injunctive relief from the courts to withhold the FCC enforcing the order and putting the color standards (and new compatible receiver standards) into effect. One of the suits stated:

"... although the Commission has no jurisdiction over receiver manufacturers, the Commission seeks to require that such manufacturers agree with the Commission to build all of their black and white receivers according to specifications laid down by the Commission. These specifications require extensive alterations in present production model receivers."

Those readers of this report who are too young to remember those early days of television have already figured out that today's color receivers do not have large spinning color discs, so *somehow* we must have gotten out of this predicament. Most are betting, we suspect, that the courts turned the matter around. *Well, they did not.*

The case moved through the courts with lightning speed, and the Supreme Court of the United States of America had it in no time at all. Because the FCC was the defendant, U.S. Solicitor General Philip B. Pearlman presented the case for the FCC. The Supreme Court provided a good forum, although they initially were uncertain just how far the court should go; should it, for example, re-study all of the technical evidence that went into the FCC decision, and perhaps hold another round of hearings on CBS vs. RCA vs. CTI color performance? Justice Jackson was particularly interested in this question, because everyone was plowing new ground.

Justice Frankfurter asked the CBS

counsellor if "...the FCC decision does not create a condition in which a possible monopoly might develop if the incompatible system were developed?" The same Justice also wondered how a government commission, not com-

posed of experts, could foreclose once and for all the further development of color systems and improvements by accepting the CBS system at this point, and then closing the door to others thereafter.

## INDUSTRY AT LARGE

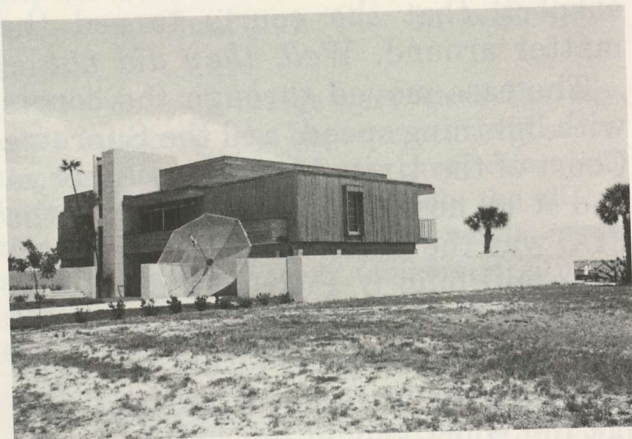
## CORRESPONDENCE, NOTES, REBUTTALS AND CHARGES . . .

CSD provides this industry Forum with the understanding that opinions, thoughts and "facts" published are from the writers; no liability for statements extends to the publishers. Address letters to CSD / Industry, P. O. Box 100858, Ft. Lauderdale, FL 33310

### 12 GHz for Arthur C?

I wanted you to have a set of pictures taken at Boca Grande (Fl) this past May at the ROBS gathering. I also wanted you to know that jointly with Triple Crown Electronics, it is possible that I may be able to provide the University in Sri Lanka, and Arthur C. Clarke, with a 12 GHz terminal.

Jan Spisar  
Television By Satellite, Inc.  
40 Racine Road  
Rexdale, Ontario  
M9W 2Z3  
Canada



The 'Harrington Manor' as seen through the Spisar lens this past May (see CSD for July '83). Jan (or Jon depending upon how you translate his heritage) was on the front cover of CSD last month displaying his new 12 GHz 'trinkets.' Triple Crown of Canada is now into the 12 GHz field having acquired some advanced 12 GHz technology from a US firm that couldn't make the grade. Now if we can get Charlie Evans out of his cocoon and into the real world, with Jan's help, we'll have some high tech 12 GHz stuff coming out of Canada in quantity!

### BURN OFF Their 10-4

I am with a company called Weatherman Electronics in Jackson, Ms and we specialize in TVRO systems. We have had numerous inquiries regarding the use of a TVRO antenna for another type of

application and are asking for help.

Several of my old CB 'buddies' are now TVRO customers and they have come by lately to ask what would be needed to modify an earth station dish to operate in the Citizen's Band frequency range of 27 MHz. It seems that these fellows have heard that some 'Ham' radio operators use dish antennas for extended communications, and naturally they want to know what they might do to extend their CB 'range.'

The differences would seem to be great. First of all, the frequency range of TVROs is far removed from 27 MHz. At the least, a different feed (for transmit and receive) would be required. Secondly, what size dish would be required since a full wavelength at the CB frequency range is about 36 feet.

They have been warned that a dish has very high gain and that such high gain would probably make the system illegal in the eyes of the FCC. Possibly it could provide as much interference as a good sized linear amplifier.

George Dunagin, Jr.  
VP  
The Weatherman Electronics  
3115 Terry Road  
Jackson, Ms. 39212

They say there is no such thing as a dumb question; only dumb answers. We'll try to play this one 'straight.' The TVRO dish gets its high gain (40 dB region which is a power amplification of 100,000) because it has a very carefully shaped parabolic curve which concentrates all of the energy at a 'focal point'. That's of course where the feed goes; to collect all of the energy collected by the precision dish surface. However, the gain of the dish is totally related to its size; the size of the dish as a function of the 'wavelength' of the signal being received, or transmitted. The bigger TVRO dishes (such as 20 feet) have more gain than the smaller TVRO dishes because they have greater 'capture power.' They catch more water and more signal and focus that signal at the feed. The 4 GHz wavelength is in the neighborhood of 3 inches long. The 27 MHz wavelength is in the neighborhood of 432 inches (36 feet) long. The gain of the dish (40 dB or whatever) is directly related to the number of wavelengths that it can capture at one given instant. A dish that is 10 feet (120 inches) wide can capture 120 divided by 3 or 40 separate 'wavelengths' of signal at a time. At 4 GHz. If you want to have 40 dB of gain at 27 MHz, where the wavelength is 432 inches across, you would have to capture 40 wavelengths of 432 inch energy at the same instant. That would require a dish 17,280 inches across; roughly 1,440 FEET wide. Nobody, not even the folks down at Arecibo in Puerto Rico (where

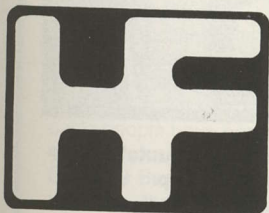
# HIGH FRONTIER DISTRIBUTION

Our new VOLUME BUY price category is going to knock your socks off!!

Call us now for information on how we can help make your successful TVRO business even more successful with these great lines;

LUXOR • DRAKE • LOWRANCE • DX • M/A COM • KLM  
• CALIFORNIA AMPLIFIER • PRODELIN • PARACLIPSE  
• JANEIL • CHAPARRAL • HOUSTON SATELLITE  
• MICROTENNA • DB ENGINEERING • TRANSIFIER

... And our great prices!!



## **High Frontier Distribution**

2230 E. Indian School Road

Phoenix, Arizona 85016

**(602) 954-6008**

**(800) 382-0395**

## **High Frontier Distribution Northwest**

976 Industry Drive

Seattle, Washington 98188

**(206) 575-0660**

the world's largest radio astronomy dish is situated) have built a dish that big. Yet. Now let's suppose that some fool decided that he wanted to take a ten foot dish and 'load' it for 27 MHz. His first problem is that his feed will have to be no less than a half wavelength long. That's 18 feet. He'll have to figure out how to squeeze a half wavelength 18 foot feed in front of a 10 foot reflector. His next problem will be that since gain of a dish is directly related to the number of wavelengths the dish is 'big' and a dish doesn't start to 'act' like a dish until the reflector is a minimum of 10 wavelengths across, he won't have a parabolic antenna at all. He'll have a half wave dipole antenna partially shielded by a chunk of metal about a quarter wavelength long. It won't work like a dish. It won't even work like an antenna. Finally, this question might better have been directed to those folks up in North Carolina who publish a TVRO user magazine rather than CSD. While the front part of their building is ostensibly dedicated to publishing, you ought to see what they have going in the back of the same building. Now THEY know how to make CB signals stronger!

#### 'THE 'F' WORD

Hold onto your hat because for the last three years I've wanted to say that you publish the best F----- technical publication that I've been fortunate enough to read. The TVRO industry, as we know it today, simply would not exist without your nurturing, guiding, informing and coordinating this new industry so well. And by the way, your technical writing is absolutely superb, in both content and form. As the recently retired EIMAC Marketing Manager for 24 years, I feel qualified to make such a judgement. Now, just for the heck of it, reach up there and see if your hat isn't a tiny bit tighter. You deserve it!

Jack Quinn (W6MZ)  
4059 Los Altos Drive  
Pebble Beach, Ca. 93953

#### STAINLESS And Rust

I am concerned that some of the stainless antennas are constructed by wrapping a single, formed sheet into the parabolic curve on a press and then welding the seam that connects the two ends together into a stiff joint. I feel certain that when you weld the stainless, the weld becomes a new composition and this will ultimately lead to rust and other surface degradation problems.

Francis C. Lebecke  
Cedar Rapids, Iowa

**No question about it; anytime you heat up a metal surface sufficient to cause it to 'flow' into another surface, and with the help of a catalyst such as a welding rod (also heated to fluid temperature) you have a 'new' set of chemistry at work. How do the stainless folks who create antennas in this manner feel about the welds?**

#### RS Technology Problems?

Enclosed is a copy of a letter to R.S. Technology (P.O. Box 3116, Mission Viejo, Ca. 92691) regarding a problem I have had with this firm.

"Concerning our telephone order of April 14, 1983 consisting of one satellite receiver, one satellite downconverter and one satellite LNA, which we have never received; we are enclosing a copy of our check which you cashed as payment in full. We are putting you on notice that if we do not receive the merchandise, or a full refund, within seven days of receipt of this letter, we will take full criminal and civil action necessary to the full extent of the law. This official notice is being sent to you on advice of our attorney."

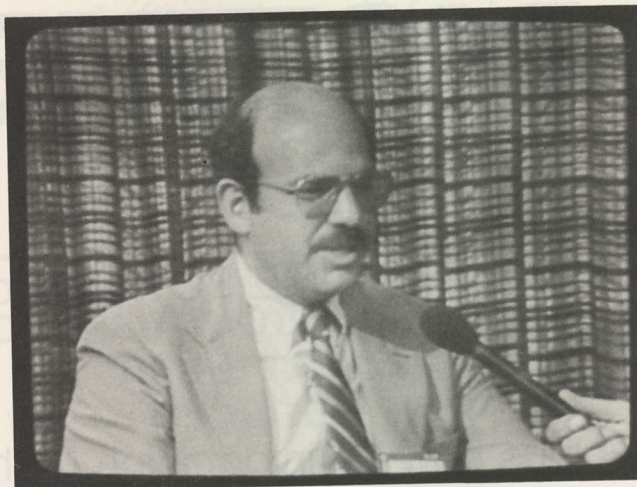
Has anyone else had any problems with this firm?

Darrell Leadingham  
Route 3, Box 324F  
Wheelerburg, Oh. 45694

**Efforts to contact R.S. Technology have failed at CSD. Perhaps someone out there knows what has happened to them?**

#### HELLO DAVID Brinkley

I just got my June issue of CSD and although I have not read it all the way through, Christmas does come once a month down here in Mexico (when my CSD arrives). I had to stop my 'Christmas' this



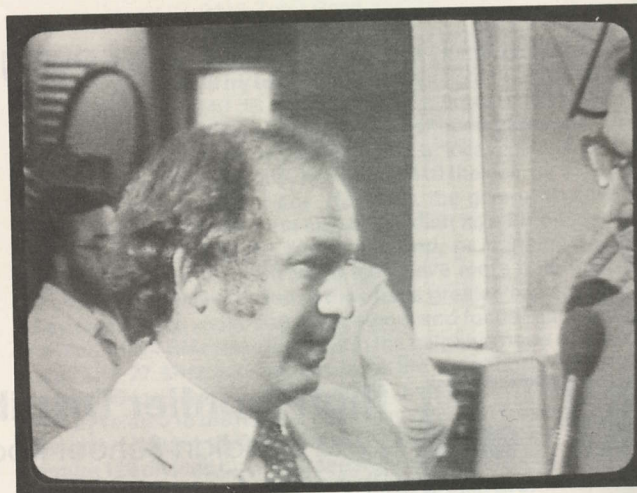
**SAT SCENE/4 PM ET on TR3, Westar 4; SPACE's Brown discusses industry legal problems with Coop. (Note: August 4th; date change!)**

month to tell you that I also saw the ABC World News Tonight story on satellite television piracy (see Coop's Comments; June CSD). Boy was I steamed! I really blew my stack that night and my blood pressure has not been the same since. I am still mad.

I'm aware that ABC has money in cable TV but at the time I saw the piracy issue report on WNT I didn't really think that was their motivation; I simply thought it was a lousy, lousy job of broadcast journalism. That's why I place part of the blame on David Brinkley who was anchoring the news that night.

The private reception of satellite signals is a very complicated subject. It has more sides than the Pentagon and to simply mix it up with the MDS piracy problem in the same news story and present it to the world in a few minutes time is inexcusable.

ABC didn't tell any lies with their report. They even gave 5 seconds to the good guys (the brief line from Bob Behar). But they slanted the story so much, and mixed it up so badly, that no matter the cause; the effect is clear. Now the little old lady from Pasadena 'knows' that if you have a dish you are a crook and a pirate. I suppose if they had wanted to do it fair, it would have turned up on 20/20. But then again, if it is bias with a purpose, as Coop suggests, that is war (as he suggests) and we, frankly, have virtually no defensive mechanisms available to us.



**SAT SCENE/4 PM ET TR3, Westar 4; August 11th. Arunta's Grotsky discusses local city zoning problems with Coop.**

It would have been 'fair,' for example, to not talk with that guy with a terminal in his backyard in Miami. But rather, talk with a rancher in Nebraska or Kansas who bought systems because they had no TV until this technology came along. It would have been 'fair' to go through the Big Bend country of west Texas where there are dozens of 'mini-cable' systems feeding work-camp 'communities' and trailer courts. There they would find dozens of dishes per settlement, often two dishes per house (one pointed at F3R and one pointed at D3 for the US networks) but no regular TV antennas because out there in the wilds there is no regular TV reception possible. At any price! Or to be 'fair' they should come and see me 1,000 miles below the US/Mexican border. I'm a real 'live' pirate and I'm willing to tell them how it REALLY is!

Which brings up the subject of programming. Something that Coop wrote last fall makes me think that perhaps he on Provo, and me in central (old) Mexico may have the same problem. We have two, single channel, cable systems here. One is at a country club and we distribute via coaxial cable. The other is an 'MDS' system about 20 miles away. Our customers, however, fit the same pattern. They are 100% Gringos, typically 60 years of age or older, and they have been out of 'the states' 8 to 10 years each. Over 90% of what we show on both systems comes directly off the three network feeds from D3. Monday through Friday we run 'Good Morning America.' Then for personal, and technical, reasons I shut down the system until it is time for the nighttime news. We show CBS first, then ABC. And then it is on to prime time. On Friday nights I go to something other than D3 network fare since **Bensen** and **The Dukes** are not very much in demand in my 'market.' Also, if I go to the networks with my programming choice on Friday night I am stuck on them when the sun comes up Saturday morning. My particular audience is not very far into Saturday Morning Cartoons so I go to F3R or W4 or W5 where I have both news and a wide selection of good programming. What I will NOT wind up on is HBO because of the unpredictable amount of FILTH. I will personally be delighted when they scramble so that I won't end up there by mistake as I did a few months back when the guide told me it was 'Comic Hour.' I heard more dirty four letter words in the time it took me to scramble to reach the receiver than I've heard in the last ten years.

When I make a switch, it is almost always to one of the super stations or PBS. My audience would much rather see an old John Wayne movie than the 'modern' trash they call premium channels. By Saturday afternoon I am back on the US networks and as you might suspect on Saturday night 'Love Boat' is very popular here. On Sunday morning we open with CBS and then switch to ABC for This Week With David Brinkley.

My last point is that I think the networks, ABC included, are looking at this issue backwards. If they had any idea how many new people they are now reaching, thanks to this brand new technology, they might find their ratings are as underrated as their logic.

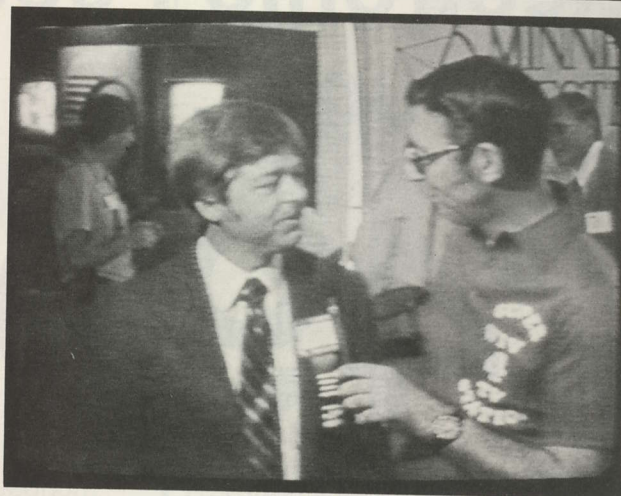
Bob Hoffman

'Someplace in Mexico'

**Hoffman sent a copy of his letter to Brinkley. ABC is setting out to overtly disparage consumer interest in home TVROs by making us all guilty of piracy before there has been a trial. Brinkley can be excused for not knowing any better; his stature removes him from the individual story decisions that some producer at ABC dreams up. ABC cannot be excused for their attack on the TVRO industry late in April of this year, nor for their projects they now have underway to do it to us again, in a bigger way. That's not journalism; that mis-use of the public airwaves to tar and feather people who have yet to even be charged in a court of law with doing something contrary to existing laws. Shame on ABC.**

#### ZONING In Oregon

CSD has asked that dealers keep the industry advised of efforts in areas to install anti-TVRO zoning ordinances. It has just begun in southern Oregon. There are four motels in Ashland that have installed TVROs. Our firm happens to be the firm that did the work. The local cable people have been upset over our pulling customers off of their cable service line. We have even received nasty letters from the Better Business Bureau concerning charges of 'piracy.' The instigators of this issue, the cable firms, have not bothered to check out the truth of



**SAT SCENE/4 PM ET on TR3, Westar 4; August 25th. Paradigm's Johnson discusses the industry trip to Sri Lanka/Clarke with Coop.**

the situation. We are authorized affiliates of **PATMAR**, whom we found through the pages of **CSD**, and are therefore truly 'legitimate.'

Redmond, Oregon has also been trying to get zoning through. One of the local radio stations rushed to get their ARO antenna system installed before the zoning took effect; they wanted to be 'grandfathered in.'

The local news media has been very active in trying to get interviews with the motel owners and our firm. The first we knew about the issue was on June 6th when a Medford newspaper reporter showed up on our doorstep. The article he wrote first appeared in the Medford paper, and then showed up in the (Portland) Oregonian.

Harvey Peck

Owner

Satellite Professionals

1757 Hiway 66

Ashland, Or. 97520

**The Oregon zoning ordinance includes the following:** " 'Dish' type antennae may only be placed in such a manner as to not be visible from the public right-of-way, and must be located on the ground. Any dish which is less than 3 feet in diameter is exempt from this provision. Pre-existing dish type antennae (sic) are not subject to non-conforming use protection, and must be removed immediately when this Ordinance is effective." **The news reports heading 'Satellite Dishes Fought' and includes a councilman quote.** "I have no problem with the idea of them (dishes), but the dish itself is visual pollution." **The real problem here, of course, is that Harvey's firm and others are getting into the 'pocket' of the cable firms who until now have had an 'exclusive lock' on the motel movie service. Isn't it amazing what free spirited American enterprise does to people. Visual pollution indeed; what about all of those UGLY coaxial cables draped along the poles all over town, and dangling in the breeze into the homes. Talk about visual pollution!**

#### KNIT Picker

I don't want to knit pick, but **CSD** is wrong. Not ALL fiberglass dishes are made out of FLY SCREEN like you told Mr. Fred Foster in your May issue (page 44). Case in point. The A.D.L. 2.6 and 4 meter dishes are made of fiberglass and Carbon reflective material. The 0.02 pure Carbon mat has the same reflective qualities and rear rejection as a solid aluminum dish. The A.D.L. 2.6 meter dish is being used by one of the leading and oldest receiver manufacturers; Andy Hatfield of AVCOM. We are also very proud of our new A.D.L. feed. At the Las Vegas show Steve Birkill stopped by and wanted to see if the dual mode feed would work for him in England. I recently sent him one of the WR-229 single polarity feeds. If **CSD** would like to evaluate Dual Hybrid Mode Feed, we would be happy to supply one to the magazine

# 8 Ft. Antenna - Quadrapod - Electronic Feed & Mount...

**\$**  
**ONLY 499**  
**50**  
MASTER  
DIST.  
PRICE

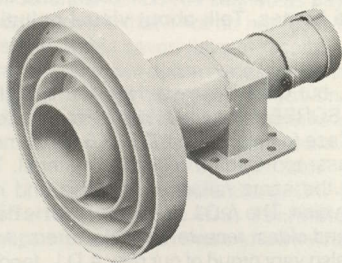
## Model SA-2400 Spun Aluminum Antenna

91" in diameter with a fully rolled edge for strength. This fully rolled edge helps maintain the parabolic shape during transportation and daily use. The SA-2400 is made from .090" material and will maintain its shape long after the sale. Fully painted surfaces assure long lasting appearance and customer satisfaction.

## MODEL QP 90 QUADRAPOD

Designed for quick, easy installation - Strong weather-resistant galvanized support legs - 3 way adjustable feed collar for precise centering and focal length adjustment - Stainless steel & nylon hardware for long life.

## MODEL EFH-75 II FEEDHORN

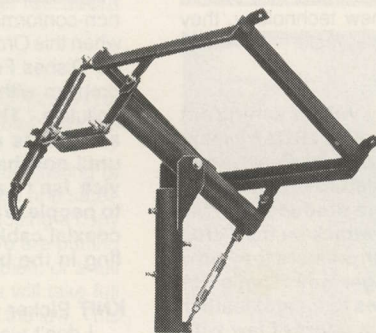


Full 360° rotation of polarity selection probe - Minimal insertion loss - Powerful weather



resistant DC motor for trouble-free operation - Epoxy painted casting for superior corrosion resistance - Angle bracket included for LNA/LNC mounting versatility - pre-wired polarity switch - Waveguide seal to keep waveguide free of foreign matter.

## MODEL PM 90 POLAR MOUNT



Provides choice of 3 different declination settings: 2.5° - 4.5° - 6.5° - Completely painted for rust resistance - Special East-

West actuator mounting arm permits full orbital sweep in any customer location - Manual actuator included - Completely packaged in sturdy container for protection of parts and paint - Complete zinc plated hardware included for high corrosion resistance - Teflon washers provided for use between moving metal parts

## TOLL FREE NUMBERS:

INSIDE CA: (800) 352-2553  
OUTSIDE CA: (800) 421-2533

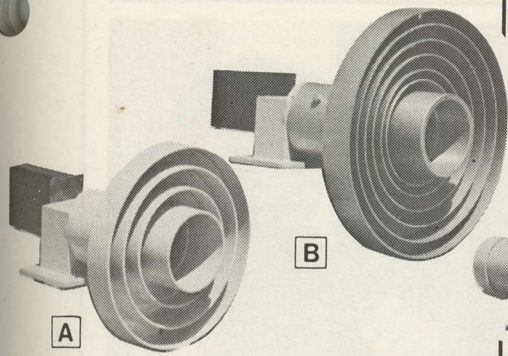


**BOMAN INDUSTRIES**  
**SATELLITE PRODUCTS DIVISION**

9300 HALL ROAD, DOWNEY, CA 90241

(213) 869-4041

# We've got your polarizers . . .



## **A EFH-75**

- Servo motor operation for fast precise polarity selection
- Precision die casting and strict Q.C. assure high performance and minimal insertion loss
- Epoxy painted/includes control

1-2 Per Shipment \$129.<sup>50</sup>

3-23 Per Shipment \$99.<sup>50</sup>

24-Up Per Shipment \$89.<sup>50</sup>

500 Spread/6 Mo. \$79.<sup>50</sup>

## **B EFH-75 HIGH GAIN**

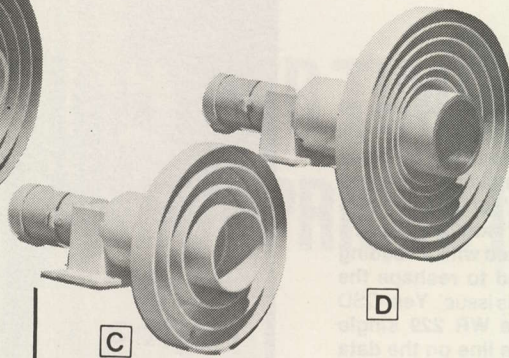
- Offers superior performance over standard feeds on any "deep" dish
- Precision machined waveguide for High Gain characteristics
- Epoxy painted/includes control

1-2 Per Shipment \$144.<sup>50</sup>

-3-23 Per Shipment \$114.<sup>50</sup>

24-Up Per Shipment \$104.<sup>50</sup>

500 Spread/6 Mo. \$94.<sup>50</sup>



## **C EFH-75 II**

- Precision die cast feedhorn insures high performance
- Low insertion loss
- Powerful weather-resistant DC motor for trouble-free operation
- Epoxy painted/includes control

1-2- Per Shipment \$79.<sup>50</sup>

3-23 Per Shipment \$64.<sup>50</sup>

24-Up Per Shipment \$49.<sup>50</sup>

500 Spread/6 Mo. \$39.<sup>50</sup>

## **D EFH-75 II HIGH GAIN**

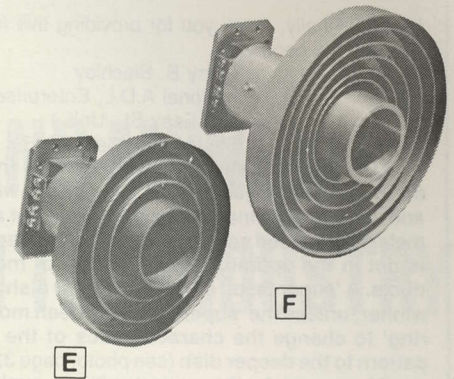
- Designed for exceptional performance on "deep" curve dishes
- High gain waveguide-Powerful weather-resistant DC motor for trouble-free operation
- Epoxy painted/includes control

1-2 Per Shipment \$94.<sup>50</sup>

3-23 Per Shipment \$79.<sup>50</sup>

24-Up Per Shipment 64.<sup>50</sup>

500 Spread/6 Mo. \$54.<sup>50</sup>



## **E EFH-90**

- Totally solid state — NO MOVING PARTS
- INSTANT polarity selection
- Full 180° rotation
- Operates with standard DC voltage supplied by most receivers/includes control

1-2 Per Shipment \$129.<sup>50</sup>

3-23 Per Shipment \$99.<sup>50</sup>

24-Up Per Shipment \$89.<sup>50</sup>

500 Spread/6 Mo. \$79.<sup>50</sup>

## **F EFH-90 HIGH GAIN**

- High-gain design for "deep" dish applications
- Totally solid state — NO MOVING PARTS
- INSTANT polarity selection
- Advance choke plate design for reduced interference
- Minimal insertion loss/includes control

1-2 Per Shipment \$144.<sup>50</sup>

3-23 Per Shipment \$114.<sup>50</sup>

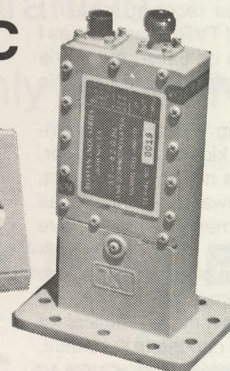
24-Up Per Shipment \$104.<sup>50</sup>

500 Spread/6 Mo. \$94.<sup>50</sup>

## SR-800 RECEIVER & 110° LNC



**TOLL FREE NUMBERS** OUTSIDE CA: (800) 421-2533 INSIDE CA: (800) 352-2553



The Boman Model SR-800 Satellite TV Receiver and LNC provides perfect performance due to factory MATCHING of both components: Total Compatibility

**\$649.<sup>50</sup>** 24 PCS/MASTER DIST. PRICE

for test. Finally, thank you for providing this forum for the industry; keep up the good work.

Gerry B. Blachley  
National A.D.L. Enterprises  
490 Easy St., Unit 4  
Simi Valley, Ca. 93065

ADL literature sheets make the claim that their feed has 1.0 dB more system gain than a 'super feed'; when used on their 2.6 and 4 meter antennas. Their data does not address the f/D parameters of the feed so that is possible if the antenna they are using is not in the optimized .4/.45 region of most 'super feed' products. A 'super feed,' stock, on a .3 f/D dish, for example, is not a winner; unless the 'super feed' has been modified with a 'loading ring' to change the characteristics of the feed to reshape the pattern to the deeper dish (see photo, page 32 this issue). Yes, CSD would appreciate the opportunity to evaluate WR 229 single polarity feed with a rotor probe. In particular, a line on the data sheet that reads "... will not corrode or deteriorate because of salt or weather conditions ..." caught our eye.

#### THINGS You Learn

Some time ago we opted to use the antennas/LNAs/drives and controllers that were in the (home) TVRO market instead of the overpriced packages offered by the firms that normally ply our (radio broadcast) market. Living in tornado/thunderstorm country provides an insight into the ability of various antennas to 'survive' when the weather turns nasty. I have had an 11 foot ADM literally yanked out of the ground along with five yards of concrete and thrown 100 feet away! At the same location, 20 feet away, I lost but a single panel on a Paracclipse 12 foot antenna and that panel was lost when the 11 foot ADM flew through the air and the trailing end of the drive motor on the ADM caught the Paracclipse with a glancing blow.

We have also learned to ground the dish proper to discourage lightning from entering the facility via the coax or drive lines. Over the years, with about a half dozen of the home/TVRO dishes installed at various commercial radio broadcasting station sites, I have learned that there are certain lines I can trust for good performance and high reliability. This would include Avantek and Amplica LNAs, AVCOM and KLM receivers, ADM and Paracclipse dishes, and Eclipse-1 drives (with reservations concerning the controllers which do not seem able to always handle the transients on drive lines and the AC input).

Ed Olmstead  
Director of Engineering  
Shepherd Enterprises  
300 West Reed Street  
Moberly, Mo. 65270

**Experience. There is nothing like it!**

#### NOT YET Idiot Proof

I own a Channel Master 10 foot TVRO with a motor driven polar mount, polarotor feed, and Drake (Channel Master) electronics. I picked the Channel Master because of the superior structural strength of the mount. The Drake electronics are adequate for a high quality (totally 'sparkle free') picture but I have to tune by 'eyeball' since the center tune and field strength meters do not always correspond to the best picture. I am upset that Channel Master will not supply a schematic diagram of the receiver so I can realign the receiver myself. I operate a music store and shop and intend to sell TVROs as soon as I consider them to be 'idiot proof.' I don't want to be called out in the middle of a Minnesota winter night to help some customer get his motor drive unfrozen!

I don't think there is any such thing as pirating. Either the government has the right to send in the Secret Service, kick down your door, confiscate your radio and shoot you; or, it does not have that right. HBO has the 'right' to 'scramble' their signal anyway they choose, as long as they do **not** use tax supported instruments (which I have helped, involuntarily, to pay for), such as satellites, to broadcast their signal. I have helped pay for all of the satellites in orbit and thus have the right to pay for unscrambled signals from them. HBO only has the right to provide TV service at a price that makes it more practical for me to voluntarily pay them for the service than to choose to purchase, maintain, and use my own private reception equipment. They have no



**SAT SCENE/4 PM ET on TR3, Westar 4; August 25th. Roy Orvis discusses Canadian use of TVROs in CATV applications with Coop.**

right at all to use the government to make competition illegal so then they can charge prices higher than the product is worth! I suppose HBO has the right NOT to broadcast their signal onto my property, but again, only if they do not use tax supported devices at all.

Frank Van Alstine  
Jensen's Stereo Shop  
2202 River Hills Drive  
Burnsville, Mn. 55337

**A Drake receiver that does not give best pictures when the center tune meter and the field strength meter are in their respective (center and peaked) proper positions may be suffering because the polarotor is not properly 'nulling' the opposite polarity signal. This 'less-than-full-nulling,' because the polarotor is not going far enough, or it has not been properly set for opposite-polarity-null, will pull a center tune meter off center when you are properly tuned (the opposite polarity signal is in there) and/or cause the field strength meter to read upscale at a peak spot when the signal you are after is still not properly tuned in. While it is possible for both meters to be 'whacko' on a receiver, when both act that way, it is usually a sign of polarization rejection problems.**

#### FUNNY NUMBERS

I found the technical aspects of the Harris Delta Gain antenna (CSD April) to be extremely enlightening. In particular, I did not realize that the diameter of the subreflector on this antenna to be 3.16 feet. This is the calculated diameter required to provide 10% blockage of the surface of a 10 foot envelope. Area still equals Pi-R squared, does it not? Furthermore a ten percent reduction of surface area does not (mathematically) translate from a 10 foot diameter to a 9 foot diameter. It is closer to 9.5 feet. Aircraft radar systems frequently utilize 'phased array' antennas for weather detection. These antennas are designed with a flat but perforated reflector. Any relationship?

Dick Shogren  
Home Cable Inc.  
2123 Lewis St.  
Salina, Ks. 67401

**Reader Shogren's math is correct; our explanation was less than detailed. The 10'/120" Harris Delta Gain dish has a subreflector feed that measures 13 inches across. The 13 inch width of the subreflector represents a 10.8% chunk of the 120 inch aperture of the Harris dish. However, the area of the dish equals Pi (3.14) times the radius (120") squared (14400) or 45,216 square inches. The region shadowed by the subreflector is 13 x 13 or 169 times 3.14 or 530(.66) square inches. And that works out to 0.012% of the total area of the dish. Our text should have been more specific, noting that the subreflector occupied an area 10.8% equal-to the width of the dish diameter. We confused, in**



## WHOLESALE DISTRIBUTORS

41 CANAL STREET, BOX D208  
LANDING, NJ 07850 • TEL. 201-347-3206

# STOP WASTING YOUR TIME AND MONEY! WE HAVE THE LOWEST PRICES IN THE INDUSTRY

## LOCOM AND CALIFORNIA AMPLIFIER LNA'S

120° only \$235      100° only \$285      90° only \$350

## AUTO-TECH RECEIVERS

GLR 500 only \$475

GLR 511 only \$495

GLR 520 only \$575

GLR 560 only \$ 675

GLR 808 only \$1095

GLR 750 only \$1275

## MOTOR DRIVES

Beachcraft only \$299

Skywalker \$375

MTI \$550

## ANTENNAS

The new ECI 11 ft. antenna now in stock. Outperforms Paraclips 12 ft. Assembly time only 1 hour. Low cost shipping. Complete with 80% efficient Seavey Feed now only \$1200. Money back guarantee.

Seavey 80% efficient feed only \$200. **NOW IN STOCK!**

**VISA AND MASTER CHARGE accepted.**

**FREE CATALOG upon request.**

trying to simplify Dr. Chugh's remarks, width and square area of the circle presented by the mouth of the dish's aperture.

#### TRINIDAD Again

I have been informed by General Instrument that you have tried out various satellite systems on different islands in the Caribbean. I would be extremely happy if you would recommend a system that would give me acceptable picture quality on Trinidad (lat. 10.5N, long. 61.5 west), for some of the North American satellites.

F.W. Dukhie, C.E.T.  
20 Edgecliffe Golfway  
Don Mills, Ontario  
Canada M3C 3A4

A Harris 3 meter Delta Gain has been proved on Trinidad, as has an ADM 20 footer. That suggests a relatively wide range of systems in the 10 to 20 foot class. Readers with an interest in selling Mr. Dukhie a system should contact him directly.

#### ANOTHER Insider

Really enjoyed seeing the interviews between Coop and George Mitchell on **Sat-Scene** on Saturdays. The historical material, touring the RCA control facility at Vernon Valley, NJ have been fascinating. Give us more!

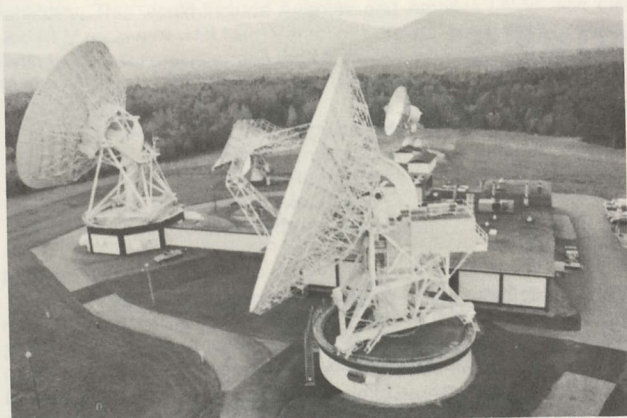
Kermit Slobb  
Chicago, Il.

Our biggest problem with keeping brother George well 'fed' with video tapes from our extensive library is finding the time to 'cull out' and 'edit' the most interesting pieces. We intend to try to keep up with George's requests for as long as the interest holds.

#### BUT Does COMSTAR Know?

I have worked for 15 years in the International Satellite Communications Department at the Andover, Me facility for COMSAT (see photo). I enjoy the material presented on Saturdays on **Sat-Scene** and would like to know more about the home TVRO industry.

Jack E. Conner  
Rumford, Me. 04276



COMSAT in Maine/ AFTRS passes through here.

#### AND — AN RF FENCE!

I have been asking around for information on an 'RF Fence'. Somebody has suggested that you might have the information I am looking for. The 'RF Fence' would be in place of a standard dish, for TVRO reception. I'd like to know as much as possible, such as the size of the antenna, the dimensions, any formulae for design and any suggestions you may have.

Bill Elmendorf  
1015 Lantern Lane  
Lebanon, Il. 62254

'RF Fence' sounds like a pretty descriptive term, but in all honesty we never heard the term previously except as it relates to creating a 'shield' to keep signals OUT of someplace; such as shielding for terrestrial interference. On the off chance that you are envisioning an antenna system that utilizes multiple feed

elements (such as lots and lots of dipoles in a 'phased array') as a substitute for a dish, be advised that 'not yet'. Yes, many of the more sophisticated microwave range radar (etc.) systems do indeed use flat-plate like antenna arrays to achieve gains similar to that found with dish antennas. Flat plates are typically easier to mount, and maintain, on board ships for example, or under the belly of a large cargo plane. They are also exceedingly expensive to create since each of the individual antenna 'elements' (or dipoles) must be precisely 'matched' (as in phased) to all others in the 'array' so that the individual signal voltages each dipole element intercepts from space adds to the individual signal voltages every other dipole in the array intercepts. That's no easy (as in simple) task at 4 GHz. To get you started, we recommend the book 'ANTENNAS' by Jasik from McGraw Hill. Good luck.

#### SIX Foot What?

Enclosed is a copy of a flier I received in the morning mail. I have never heard of these people before. It seems like they are advocating, openly, the 'bait and switch' trick which other industries often practice. Have we in this industry not been sufficiently accused of being con men or flim-flam operators that we have not learned our lesson? Now here we are giving ammunition to our critics! I do not look forward to having to explain to my clients that the high quality systems I am selling are different than or better than this mail order junk. With our industry being attacked from all sides, why must we do this to ourselves???

Daniel J. Davis  
Dream Communications, Inc.  
1513 Avenue F NW  
Childress, Tx. 79201

Daniel's flier-copy told about a six foot package offered by a firm in Colorado. The data sheet openly states "... The main thing is to advertise a dish system for \$1395 in your local area. Have the customers come over where you can show them the 10.5' aluminum dish, or a videotape of its performance. Most will then buy the larger model, while the smaller dish gives you a good sales leader. ...". That is, of course, 'bait and switch'. It may not be illegal (it all depends upon how it is represented) but at best it is a shoddy way to do business. And anyone who reads, and understands, last month's detailed report on the six/eight/nine foot phenomenon has to at least realize that they are offering 'interim, low grade service' with very little chance that the system will continue to perform in a satisfactory manner for more than a year or two. Who needs this.

#### SEEKING US Partnership

Our company is investigating the TVRO market. We are presently in the land mobile business with a staff of six. We would appreciate some assistance in finding the following:

- 1) A standards converter that will take SECAM or NTSC and display it as converted to our local PAL system;
- 2) A PAL projection monitor and projection system;
- 3) Plans or manufacturing drawings for a compact, easily installed polar mount to support dishes in the 16 to 20 foot size region, and capable of holding the antenna stable in a coastal (windy) area.

We are in the process of establishing a small manufacturing facility to produce TVRO antennas in the 16 foot size range and are arranging to purchase a selection of US made hardware for evaluation, prior to marketing. The local 'hunger' for alternative TV programs can easily be visualized from the December '82 CSD 'South African Installation' story. We are confident that TVRO is a diversification area we should be pursuing.

J.C. Corson  
Managing Director  
Border Communications Ltd.  
47 Commercial Road  
East London, 5201  
Cape Providence, South Africa

American manufacturers and distributors interested in establishing outlets in South Africa should contact Mr. Corson directly. Oh yes. In the 'English' world, a 'Managing Director' is a title that corresponds roughly to 'President' in an American corporation.



## QUANTA Q-7<sup>TM</sup> Programmable Satellite Scanner PATENT PENDING

- 52" — 18" stroke, 115V, 18" 36VDC.
- Universal Model, fits any polar mount dish.
- 52" - 115V Long Jack, designed for extreme wind, weather & temperature ranges, stabilizes antenna.
- 18" - 115V Short Jack, replaces center type saginaw.
- 18" - 36VDC Short Jack for small, lightweight antennas & warmer climates.
- One year Warranty, 100' cable, ready to plug in & operate.

AL GAUB — Sales Rep.

U.S. & Canada  
Sales Office  
307-654-7500

**\$338<sup>00</sup>**  
(Quantity Price)

## QUANTUM ASSOCIATES, INC.

ALPINE AIRPORT • ALPINE, WY 831128

307-654-7501

**WHICH For P.R.?**

In your Home Satellite TV Reception Handbook, Coop writes that even though it is not recommended that anyone try to call, a letter can be answered. For two years I have had the plan to install a TVRO for my home. Because of space limitations, a 20 foot or 16 foot antenna is 'out' of the question. I could squeeze a 12 foot in however. The Coop article in the March '83 issue of VIDEOPLAY Magazine motivated me to make the decision to go ahead and purchase a 12 foot system before this year is over. If I could see and test a variety of units, I would have no difficulty selecting a good unit. I am an electronics enthusiast, an engineer, and a mathematician and I certainly understand the parabola and the basics of what makes one good, or not so good. Is it morally wrong for you to point out which antenna or antenna would be suitable for me in Puerto Rico?

Hermínio Bermudez  
P.O. Box 1290  
Guayama, P.R. 00655

**Nope. We came back and did it in a later issue of VIDEOPLAY. And those who subscribe to CSD already know. A Paraclypse has excellent ease of transportation, and it works very well (see Coop's Comment July issue for an update). For absolute top performance, the USS 12'6" dish is the best we have seen yet. Of course it may be something of an expense to get shipped to Puerto Rico. Doug Dehnert told us that inland freight to Florida is about \$300 from Minnesota, and water freight another \$300. Don't ship it by air; our's cost nearly \$700 to get down here at over \$1 a mile!**

**HOME TVRO vs HOME DISH**

After reading Coop's article in Videoplay on home satellite TV systems, I am half afraid to buy one. As I understand it, people who own one are getting 40 or more channels now, and they are not paying anything for the service. The article says these systems will not work later, unless the viewer pays a one-time fee of \$2500, or a monthly fee, and then he will only get three channels. I get three channels now, but the programming is lousy. In town (I am in the country) they have 8 channels of TV at \$18 per month. I am presently 65, and I am on Social Security. I could afford a \$2500 system now, but what about later? Please answer since I am stuck out here with nothing to do and nothing to watch.

Harry N. Hobson  
P.O. Box 1051  
Alturas, Ca. 96101

**You retired too early. That's the problem with retiring at 65, or at any mandatory age; you get phsyched into believing that is your only option and you get stuck out in the country 9 miles from no-where with nothing to do but watch the daytime soaps. Some neat way to spend the best years of your life. People should be forced at age 55 to stop whatever they are doing and start all over again. No matter what. By the time they reached 65 they would just be getting productive again and they could spend their last twenty years or so doing something brand new that excited them. When a guy becomes a mechanic at 20, and spends the next 45 years being a mechanic, he gets to 65 ready to retire out of sheer boredom with spending 45 years twisting wrenches. If you stopped earlier, and started fresh, all of that piss and vinegar that you had in your youth would come back while you were still young enough to dive into some new area which probably didn't even exist when you were 20. That way the mind stays rejuvenated and the body doesn't get talked into quitting because the mind has stopped working. Will somebody call Harry (916-233-2787) and see if they can help him out? He never read anything Cooper wrote telling that there was a \$2500 'one time fee', or that he'd only get three channels in the future. What he needs is something to occupy his time and get his mind working again. Maybe we should start an 'elder-businessman-league' in the industry and put people over 65 back to work helping us populate America with dishes.**

**ANOTHER SALES LEAD**

Recently I read an article in **Hampton's 1983 Video Buyer's Guide** regarding 'Home Satellite TV — To Buy or Not To Buy?'. I am

very interested in owning an earth station as at the moment the programs available in my area are not good at all. Presently I own a Sony three color receiver (PAL, SECAM and NTSC) and my residence is in Bali, Indonesia. From my location, would I be able to see the present US and Canadian domestic satellites? What about the satellites bringing television to Europe? If some of the transmissions are scrambled, is it possible for a person outside of the USA/Canada to acquire a descrambler? At this point, I have little knowledge regarding this new technology, or the costs involved. I believe I can afford a system, however, and look forward to receiving some information.

Alya Riva  
P.O. Box 190  
Denpasar, Bali  
Indonesia

**A high quality 16 foot or larger dish, equipped with the best grade of electronics (80 degree LNA, one half transponder/full transponder switching IF receiver, circular or linear polarization feed) would be capable of seeing the CBS television network feeds to the far east, CNN to Japan, and occasional feeds from Intelsat, plus the domestic programs for Australia, Phillipines, Indonesia and others from the Palapa and other birds over the Pacific. The strongest reception would probably be from the Indian Ocean (Russian) G(h)orizont bird. Readers with export capabilities should contact Mr. Riva directly.**

**REPORT From Curacao**

I have an ADM 20 foot dish, a California Amplifier 85 degree LNA, and an Automation Techniques GLR-560 receiver. On the island of Curacao, at the far southern end of the Caribbean barely off the coast of Venezuela, I have totally clean signals on F3R transponders 3, 7, 11, 15, 19 and 23. I have excellent signals (very few sparklies) on TRs 4, 8, 12, 16, 20 and 24. I have poor signals on TRs 1, 5, 9, 13, 17 and 21. And I have very weak signals on TRs 2, 6, 10, 14, 18 and 22. All of the signals from Westar 4 and 5 are coming in with perfect or excellent signals. On F4, only TR 3 is excellent. Finally, the Comstar satellites come in with poor signals.

F.B. de Castro  
Golden Watch-Optica KYWI. N.V. (Inc.)  
P.O. Box 2053  
Breedestraat, 11  
Curacao, N.A.

**Those results check. What is fascinating is that further west, and south, in Equador, they have as good signals from ANIK as they do from all but the very best of the US domestic birds. From the peninsula facing into the Caribbean of Colombia, east, the ANIK signals disappear.**

**SMALL AIN'T SO NEAT!**

For the past year or so I have been building large antennas (up to 7.5 meters) in the Dominican Republic. From my perspective I find it very disturbing and quite mis-leading to read stories and reports about 'Great Reception' being obtained with 10 and 12 foot dishes in this area, even if they are very good antennas (Paraclypse 12 foot; Harris Delta Gain 10').

It is my belief that most of these reports are lacking in the practicalities and fail to provide adequate warnings to prospective readers. Further, these reports seem to have been made with little regard for certain realities which affect our area in particular, and satellite enthusiasts in general.

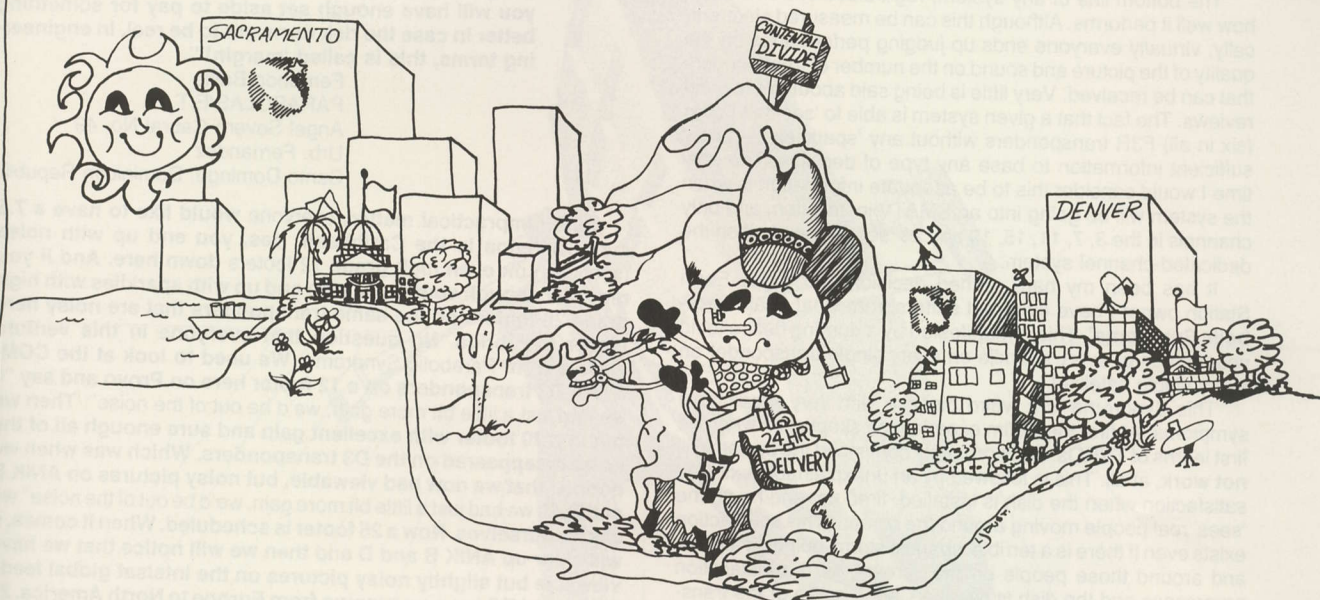
The first point to be considered by anyone interested in a Caribbean Earth Station is **total system cost**. Aside from actual equipment costs, total system costs in our area include such items as:

- 1) Exorbitant freight; handling, and, crating charges;
- 2) Even more exorbitant custom duties, depending upon each country;
- 3) The cost and aggravation of dealing with authorities when such equipment is unknown and difficult to understand;
- 4) The cost of securing 'US dollars' by whatever acceptable means available;
- 5) Installation costs, which many times will involve the expense of an outside 'expert';
- 6) Travel expenses either of the prospective system owner, or the selling and/or installing dealer;

ANNOUNCING...

# ECHOSPHERE WEST

Now Open in California!



## Stocking Master Distributor For:

ADM	Crescomm	Janeil	Prodelin
Arunta	DH Antennas	KLM	Satellite Ground Components
Automation Techniques	Danex	Luly	Sat-Tec
Avcom	DX Receivers	Luxor	Transifier
Blonder-Tonque	Dexcel	MTI	UHF Associates
California Amplifier	Drake	Norsat Tweaker	Vector Systems
Chaparral	Houston Satellite	Power Consultants	Wilson

With Two Locations to Serve you Better...

**ECHOSPHERE  
WEST**



5671 Warehouse Way  
Sacramento, CA 95828  
(916) 381-5084

T.M.

TO ORDER CALL: 800-338-5477 (WESTERN ZONE)  
800-338-5478 (IN-STATE CALIF.)

**ECHOSPHERE  
CORP.**



2250 S. Raritan, Bldg. A  
Englewood, CO 80110  
(303) 935-1909

T.M.

TO ORDER CALL: 800-521-9282 (NATIONAL)

- 7) Extra costs for premium equipment such as is required in this region of the footprint world (the most sensitive receivers, the best LNAs, etc.) and the fact that as the dishes become smaller, even more critically 'perfect' equipment is required.

From all of this it is not difficult to conclude that there is no such thing as an 'inexpensive system' for this area, regardless of dish size. We can certainly forget about the US \$3,000 stateside package price since by the time that same system is actually delivered and installed in the Caribbean, the minimum cost to the system owner will be in excess of US \$6,000. If we accept this as a fact of life (it **could** be far higher since some import duties exceed 200%), it makes very little sense to try to save or shave a few bucks on antenna size when it will have such a profound impact on overall system performance. And that brings us to our second observation.

The bottom line of any system, regardless of dish size, is how well it performs. Although this can be measured electronically, virtually everyone ends up judging performance on the quality of the picture and sound on the number of transponders that can be received. Very little is being said about this in most reviews. The fact that a given system is able to 'see' the hotter (six in all) F3R transponders without any 'sparklies' is hardly sufficient information to base any type of decision. The only time I would consider this to be adequate information is when the system will be going into an SMATV installation, and only channels in the 3, 7, 11, 15, 19 and 23 'set' will be used on the dedicated-channel system.

It has been my hard earned decision that every Earth Station owner I have ever met suffers from what I call '**Parabolic Syndrome**'. This is manifested by a burning desire to rid your screen of every sparklie on every single transponder on every single satellite!

This Syndrome is a weird disease with very predictable symptoms. At first the victim experiences skepticism when he first learns of TVROs. He is probably convinced the system will **not work**, at all. This is followed by an unexplainable extreme satisfaction when the dish is installed, fired up, and he or she 'sees' real people moving around the screen. This satisfaction exists even if there is a terrible 'sparklie storm' going on all over and around those people on the screen! As the installation progresses and the dish is tweaked, soon some of the transponders are 'clean'. Now the new system owner is really excited and there is tremendous disbelief that such a thing is possible. But way in the back of the mind, a new problem is growing. They are asking themselves 'If those channels are perfect, why can't **the rest** be perfect also???' After this period comes the 'Red Eye' sequence where the victim will sit there glued to the screen for hours and hours, days and days, watching almost any program regardless of the content or the hour!

Finally the novelty wears off, and immediately 'Parabolic Syndrome' sets in. By this time the 'clean transponders' are taken for granted. And, all 'attention' is concentrated on the transponders that had sparklies on them all of the time. The preoccupation slowly becomes an obsession which is further aggravated everytime the viewer learns that somebody else in the area has installed a system and reportedly 'seeing no sparklies' on those transponders which the viewer does have sparklies on.

Anyone in this part of the world who plans an Earth Station around anything smaller than a high quality five meter (16 foot) dish, and good quality, sensitive electronics had better be prepared to withstand a severe case of Parabolic Syndrome, with very expensive remedial treatment.

The real lesson here is that if you live in the Caribbean and want satellite television, your **actual** investment is not going to be small, regardless of what system you buy. If you want it that badly, it is far smarter to spend a few extra bucks and get the right system the first time around. Constant upgrading of equipment, and antennas, is a far more expensive (and frustrating) way to go.

All of this does not mean that a smaller system will not work. It is simply a matter of being satisfied with the performance you will get with a smaller system, in relation to the dollars spent.

This is a particularly important consideration when you consider that once a person or family **has** satellite television, they will never **really be satisfied** until they have eliminated every sparklie from every transponder on every satellite!

I would like to conclude by paraphrasing a quote from John Ruskin, which I find particularly appropriate to this situation: ". . . It would be foolish to pay more than you should, but it would be worse if you paid too little. When you pay more than you should, you lose some money. When you pay too little you will often lose it all because what you bought is not capable of doing the job it was intended to do. The common law of commercial equilibrium prevents that you pay too little and receive too much; it is just not possible. If you buy from the lowest bidder, it would be prudent to 'reserve' something for the risk you are taking. If you will do this, then you will have enough set aside to pay for something better in case the risk turns out to be real. In engineering terms, this is called 'margin!'".

Fernando Batlle  
PARABOLAS/E.T.  
Angel Severo Cabral No. 49  
Urb. Fernandez  
Santo Domingo, Dominican Republic

As an impractical matter, everyone would like to have a 7.5 meter antenna in the Caribbean. Yes, you end up with noise (sparklies) on even high grade 12 footers down here. And if you move far enough south, you also end up with sparklies with high grade 20 footers on the same transponders that are noisy here closer to Florida. No question that everyone in this venture suffers from Parabolic Syndrome. We used to look at the COMSTAR D3 transponders on a 12 footer here on Provo and say "If we had just a little bit more gain, we'd be out of the noise". Then we put in a 20 footer with excellent gain and sure enough all of the noise disappeared on the D3 transponders. Which was when we noticed that we now had viewable, but noisy pictures on ANIK B and D. "If we had just a little bit more gain, we'd be out of the noise" we said to ourselves. Now a 25 footer is scheduled. When it comes, it will clear up ANIK B and D and then we will notice that we have viewable but slightly noisy pictures on the Intelsat global feeds CBS and ABC are now running from Europe to North America, 24 hours a day. And we'll probably start looking for a 30 footer. When we finally reach that magic size where every 4 GHz transponder is clean from all 22 of the birds we have in view from down here, then we'll start all over again at 12 GHz. The first ten foot 12 GHz dish will give way to the first 15 foot 12 GHz dish, and on and on and on. We figure by 1990 or so we'll have 4 and 12 GHz where we want them (with probably 300 channels of television by then), just in time for the next generation of 20 GHz birds. You are fooling yourself Fernando; there IS no cure for this disease!

#### LOOKING For Good People?

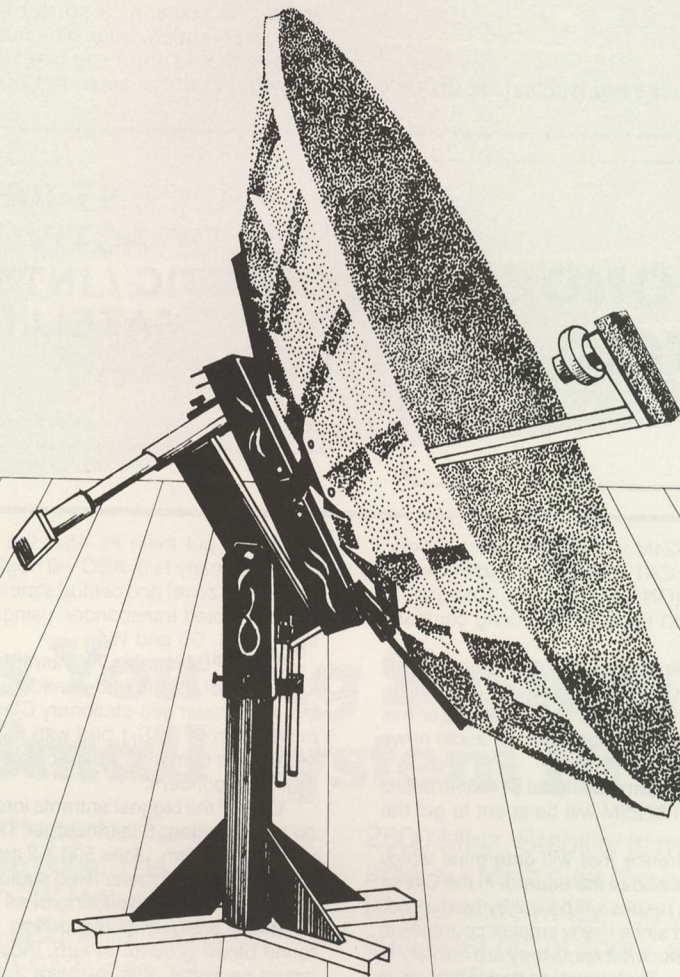
Our company specializes in Microwave, Electronic Warfare and Military related search and placement for engineering level and management level personnel. Our team of professional recruiters are trained continuously, both in house and externally, to keep pace with industry. My specific specialty line is Antenna Systems and Satellite Communications; personnel. We offer our services to firms on a retainer or exclusive search basis.

Dick Kania  
NewTech Executive Search  
P.O.Box 228  
Salem, NH 03079

The NewTech telephone number is 603-893-5080. Our industry is starting to mature to the point where good people with existing microwave skills are harder and harder to find. Rather than continuing to rob from one another at each trade show, suppose we start robbing from those other microwave folks who still think that 4 GHz has to be gold plated and expensive. We aren't crazy about 'head hunters' as a group, but we've got to start shoring up our talents from someplace and the 'other' microwave industries around us is as good a place to start as any.

# THE ECHO II DIFFERENCE

The Best Performance, Ever.



A Step Ahead  
In Satellite Receiver Systems



2250 SO. RARITAN, BLDG. A  
ENGLEWOOD, CO. 80110  
(303) 935-1909

To order call: 1-800-521-9282

**BEWARE Oriental Cleverness**

I thought you might be interested in the enclosed 'new TVRO antenna design'. It appears to be a variation of the 12/14 GHz 'lens' antenna which was publicized here in Canada 12 months or so ago. I seem to recall that the limitation of this system at the time was that it only offered a 30 degree or so 'look angle'. I would like to hear from somebody about any receivers that have been designed to function at both 12 GHz and 4 GHz.

John Grayson  
1967 Rockcliff Road  
North Vancouver, B.C.  
V7G 1X3

John's 'clipping' tells of a Li and Yeng, students at the Uni-

versity of British Colombia, who working with a \$1500 grant from the British Colombia's former Communications Minister Pat McGeer created a 'lens antenna' out of approximately '600 pounds of aluminum'. The pair claim the antenna is flat, can be mounted inside a roof of a building, and uses a detached 'horn antenna' to capture the signals 'focused' by the lens. The photo accompanying the report shows the pair standing before what appears to be a heavy aluminum 'grate'. They claim it has a dual purpose; focusing TVRO (satellite) signals, and, functioning as a 'skylight'. Minister McGeer, a staunch defender of people's right to have a home TVRO antenna in western Canada, without federal (Canadian) intervention, was defeated in the most recent election. Reports that Li and Yeng had taken their antenna/lens and disappeared to China could not be substantiated.

## TRANSPONDER WATCH

## RECENT REPORTS OF ACTIVITY ON DOMESTIC / INTERNATIONAL SATELLITES

Send your reports to CSD Transponder Watch, P.O. Box 100858, Ft. Lauderdale, FL 33310. For late news, call (305) 771-0505.

**OAK** Industries lost more than \$24M in the first quarter of year; blames loss of control of products in CATV field plus rapid decline in over the air subscription TV service (ON-TV) for losses. Company is counting on sale of 'Orion' encryption equipment to bring company back into profitable format.

**ASSOCIATED** Press began uplinking through Westar 3, TR1, their full national AP wire service on July 1st. Relatively unsophisticated and readily available FSK demodulators are available for this service. Also on the same bird and transponder; the AP audio news service.

**FCC** has approved COMSAT raising an additional \$440M in bucks through 1985, of which no less than \$225M will be spent to get the COMSAT DBS service into the air.

**RARC**/ the satellite 'DBS' conference that will determine which nation gets how many DBS orbit slots above the equator in the Clarke orbit belt, is nearing completion. The results will be out by next month and then the real scrambling will start since many smaller countries in the western hemisphere will end up with orbit spots they are unlikely to be able to raise funds to use; or justify. That will place their allocations 'on the block' and allow these smaller nations to sell them off to the highest bidders. Some of the nations requesting unusual number of transponders; St. Pierre-Miquelon (French island off of Canada's east coast) wants 8. Haiti and Jamaica wanted 5 each. French Guiana also wanted 8 (eight may be a 'magic' number in some long range French planning), and Paraguay wanted 18. Oh yes, the (British) Falkland Islands requested 4.

**FCC** may be backing down on position that it would not create and enforce 'technical standards' for DBS. As it now stands, every DBS operator can decide what type of modulation format, how wide his modulation will be, how he will send audio signals and so on. No two of those planning DBS seem to be thinking alike, which means every DBS service out there will require their own 'special' receiver. FCC is now putting together an advisory committee to look into matter, may even go so far as to recommend standards. Meanwhile, the early entrants are charging ahead with plans to launch their own formats with their own standards; non-compatible standards.

**FIFTEEN** TVROs are being installed for west coast ABC affiliates, to use C band feeds on F4 transponder 22. The west coast (PT) time zone feed has been operating around the clock for nearly two months now. Nine and seven meter dishes are being installed as fast as the

crews can put them in. After the PT zone western feed system is complete (early fall), ABC will begin a similar project in the mountain states (MT zone) and central states (CT zone). Each zone will have its own dedicated transponder, using C band berths ABC owns or controls on F4, D3 and W4.

**EUROPEAN** cable TV interests let out their breath after successful launch of Ariane bird in mid-June and transfer of ECS-1 12 GHz bird into proper geo-stationary Clarke orbit. Next up will be test transmissions from ECS-1 bird with full scale programming for the European cable community expected by mid-fall on at least the first of the new transponders.

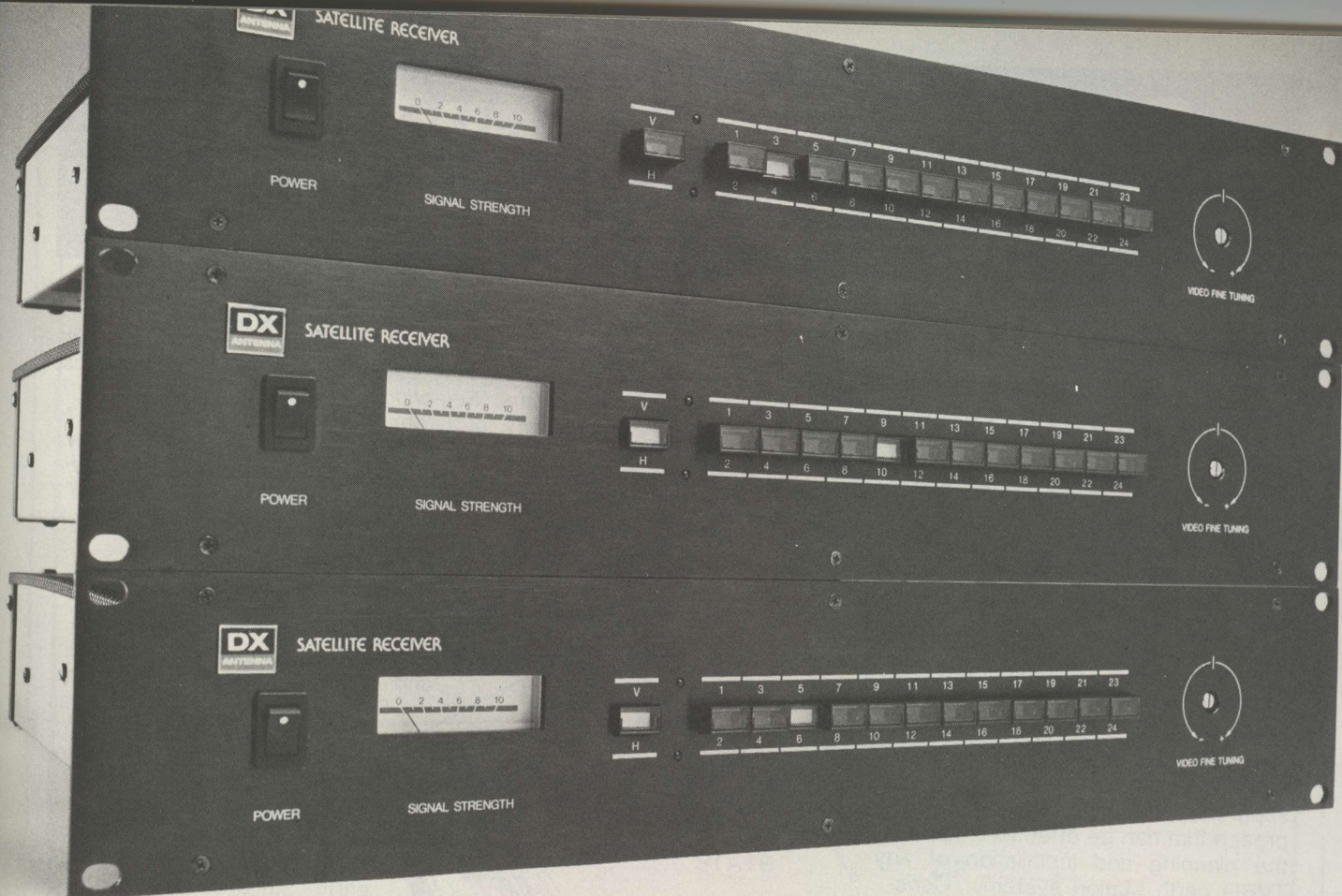
**ONE** of the biggest entrants into the 12 GHz world to date will have no use for video. Schlumberger Technology Corp., the worldwide oil well analysis firm, plans 500 1.2 meter transportable systems (up and downlink), 50 1.8 meter fixed stations and a 9 meter unit. The concept is that electronic monitoring of oil well drilling sites will allow instant computer analysis of the drilling progress and the earth formation found below ground. In turn, those responsible for drilling the wells would be better able to make accurate decisions of whether to go ahead or abandon drilling sites saving billions of dollars annually in the oil exploration business. M/A Com is the big winner here as the project looks to be over \$43M in size.

**SUCCESSFUL** launch and deployment of Palapa B (C band) and ANIK-C (Ku band) satellites from number seven flight of Shuttle is causing re-evaluation of the accuracy of the entire Shuttle program. Prices to date have been pegged to NASA's estimates of how accurately Shuttle crews could deploy birds into orbit. Latest launches were so close to perfect that NASA says typical bird will get 1 to 2 years 'extra life' after launch since it will arrive on station in Clarke orbit using far less of its station keeping fuel in the process. Result? NASA may up charges it makes to bird owners in future, trading more accurate launches for longer bird life.

**COMSAT** has reacted to plans of Orion and others to establish 'private' international satellite services by asking FCC for permission to allow users to build and operate their own uplink and downlink facilities. One of the Orion plans was to allow users to function much like DOMSAT users function; uplinking from their own stations to bird(s). FCC must approve plan.

**NEW** Ghorizont uplink station nearing completion in Nicaragua;

TRANSPONDERS/ continues page 64



## DX Gives You Big System Quality at Small System Prices.

Now you can have top quality performance for a surprisingly reasonable price. The DSA-643 Satellite Receiver from DX features dual, **block downconversion**—unique for receivers in this price range. The DSA-643 uses a discriminator circuit for signal demodulation; a full 30 MHz bandwidth; and a unique threshold extension circuit. These features add up to a low threshold carrier to noise ratio, commercial quality reception and low cost installation in any system.

DX also provides the DSA-541 Block Downconverter. It features a highly stable ceramic resonator, with a fixed frequency of



2800 MHz. Stability is maintained at a remarkable  $\pm 1$  MHz over the entire  $-30^{\circ}$  to  $+50^{\circ}\text{C}$  temperature range. So you can install the downconverter out of doors, at the dish, without concern for frequency drift caused by temperature changes year after year.

The innovative DSA-643 Satellite Receiver and DSA-541 Block Downconverter are brought to you by DX, one of the most respected names in satellite television reception systems in Japan and around the world. DX also provides line amplifiers, power dividers, and other block downconversion-compatible accessories.



DX Communications, Inc., A Subsidiary of C. Itoh & Co. (America) Inc.,  
116 Midland Ave., Portchester, N.Y. 10573 (914) 939-8880  
Manufactured by DX Antenna Co., Kobe, Japan.

# Get the ASTI Handbook And Kiss TI Goodbye!

## What Is ASTI?

Terrestrial interference (TI) is fast becoming a major economic consideration for the installers and operators of TVRO earth terminals. Thousands of dollars, even hundreds of thousands, may be at stake when the earth station is turned on — only to discover that TI is degrading or altogether preventing reception of desired satellite signals. At this point, conventional wisdom used to advise packing up and moving to another site. But now, with many of the available TI-clean sites already taken, and with the advent of a huge and still growing transcontinental microwave telephone relay system, finding another site can be impractical if not impossible. Consequently, most dollar-conscious installers and operators would rather stand and fight TI than switch to another site.

The purpose of this volume is to integrate two practices — avoidance and suppression — into a logical, unified approach that can be effectively applied in the planning and installation of any TVRO earth station system. Conscientious application of ASTI — the avoidance/suppression approach to eliminating TI at TVRO earth stations — will reduce the possibility that TI will be discovered at turn-on, enhance the probability that unavoidable TI can be eliminated, and increase the effective operating quality of the TVRO system.

The authors of this handbook, with years of experience as designers of RF and microwave filter networks, have had ample opportunity to test the ASTI approach—it works! Measured over a period of time, the costs involved in the ASTI approach have proved to be substantially lower than any alternative, especially in terms of dollars saved when the initial site was made operable. Furthermore, both cost and complexity of filtering to eliminate TI are lowered considerably when all essential aspects of the ASTI approach are conscientiously employed.

## Contents Include:

*The TI Avoidance/Suppression Approach; Why Satellites; How Your Earth Terminal Works; TI Sources; TI Symptoms; Selecting the Antenna for Least TI; TI Susceptibility of Other TVRO Components; How to Select a Site; The Pre-Installation Site Survey; Defensive Installation; Use of Artificial Shielding; Filtering the TVRO; Filtering Special TVRO Systems; SMATV Techniques; Standard TVRO and Satellite Data; Formulas and Derivations...*

## About the Authors:

**Glyn Bostick** is the founder, president and chief engineer of Microwave Filter Company, Inc. He has been designing filters for the suppression of interference in cable TV systems, industrial and defense communications equipment, and satellite earth stations since 1967. Mr. Bostick has written a plethora of technical articles for trade publications, holds several patents and is a senior member of the IEEE.

**John Fannetti** is MFC's senior technical consultant and head of the company's new Field Service Division. He has 30 years of engineering and earth station troubleshooting experience, including 7 years as president of JDF Communications, a CATV consulting and TVRO installation firm.

**William Johnson**, chief engineer of research and development, is MFC's "voice" and travels around the country, upon request, to deliver ASTI-type lectures at various industry gatherings. In his technical capacity at MFC, Mr. Johnson is the design engineer in charge of special developmental projects. He earned his BSEE at Syracuse University and is currently engaged in graduate studies there.



## AVAILABLE NOW DIRECTLY FROM CSD TECHNICAL BOOK SERVICE!

## ORDER USING order form to right

- **HERE IS MY ORDER** for the complete 1,000 plus page **CSD ANTHOLOGY** in two volumes, covering the full first 24 issues of **CSD**. \$100 in US funds enclosed (USA only; \$125 elsewhere including Canada, Mexico).
- **HERE IS MY ORDER** for just Volume One, covering October 1979 through September 1980 of **CSD**. \$60 in US funds enclosed (USA only; \$75 elsewhere in US funds).
- **HERE IS MY ORDER** for just Volume Two, covering October 1980 through September 1981 of **CSD**. \$60 in US funds enclosed (USA only; \$75 elsewhere in US funds).

## THE ORIGINAL 24 MONTHS OF CSD / THE ANTHOLOGY!

NAME \_\_\_\_\_

COMPANY (if applicable) \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

Order Anthology from: CSD, P.O. Box 100858, Fort Lauderdale, FL 33310

- **ENTER MY 12 MONTH** subscription to **CJR**, mid-month TVRO dealer publication, for **delivery within USA** and US possessions; \$35 US funds enclosed. (NOTE: You MUST include business-card or copy of company letterhead to qualify for subscription!)
- **ENTER MY 12 MONTH** subscription to **CJR**, mid-month TVRO dealer publication, for **delivery outside of USA** and US possessions; \$42 US funds enclosed. (NOTE: You MUST include business-card or copy of company letterhead to qualify for subscription!)
- **SAMPLE COPY OF CJR/** ENCLOSED \$5 IN US funds for **sample copy** of first, inaugural issue of CJR to US or foreign destination.
- **ASTI HANDBOOK/** \$125 US funds enclosed. Send immediately brand new Microwave Filter Company ASTI HANDBOOK.

## 12 MONTHS OF CSD/ 12 MONTHS OF CJR/ ASTI HANDBOOK!

- **ENTER MY 12 MONTH** subscription to **CSD**, via airmail, for **delivery within USA** and US possessions; \$50 US funds enclosed.
- **ENTER MY 12 MONTH** subscription to **CSD**, via airmail, for delivery to **Canada/Mexico**; \$60 US funds enclosed.
- **ENTER MY 12 MONTH** subscription to **CSD**, via airmail, for delivery outside US/Canada/Mexico; \$75 US funds enclosed.

NAME \_\_\_\_\_

COMPANY (if applicable) \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_ COUNTRY \_\_\_\_\_

**ORDER ANY OF ABOVE FROM:** CSD, P.O. Box 100858, Ft. Lauderdale, FL 33310

**Note:** You may make inquiry concerning any of these **CSD** products by calling 305-771-0505 **between 9 AM and 4 PM** weekdays (ET).

# Two-Step into Stereo



## Step One: Challenger 421 Satellite Receiver

A new, compact Arunta receiver engineered for quality video and monaural audio reception at an affordable price.

### 421 Features Include:

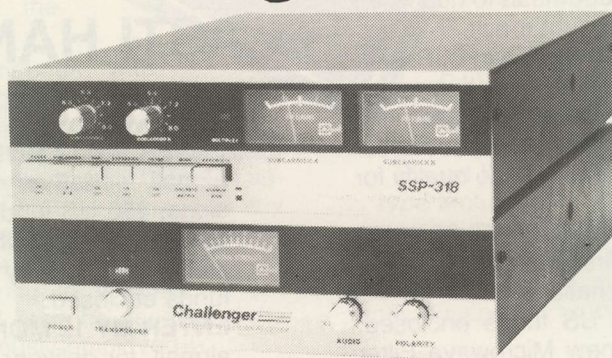
- S.A.W. Bandpass filter
- Frequency Agile Video and Audio continuous tuning
- Lighted Transponder indicator
- Polarity Controller Chaparral and Boman Polarotor I
- Built-in Channel 3/4 Modulator
- Remote weatherproof Downconverter
- Sensitive Signal Strength Meter
- Automatic drift-free AFC

### Manufacturers of:

- Parabolic Antennas
- Satellite Receivers
- Terrestrial Interference Filters
- Threshold Extension Filters
- Stereo Processors

## Step Two: SSP-318 Stereo Processor

The SSP-318 Stereo Processor is the perfect add-on for any existing TVRO system to give full stereo reception in multiplex, matrix, and discrete transmission. The 318 matches the Challenger 421 to make an attractive component system.



**For additional information contact  
your local Arunta authorized dealer  
or contact:**



**P.O. Box 15082 • Phoenix, AZ 85060  
3111 E. Thomas Rd. • Phoenix, AZ 85016  
(602) 956-7042**

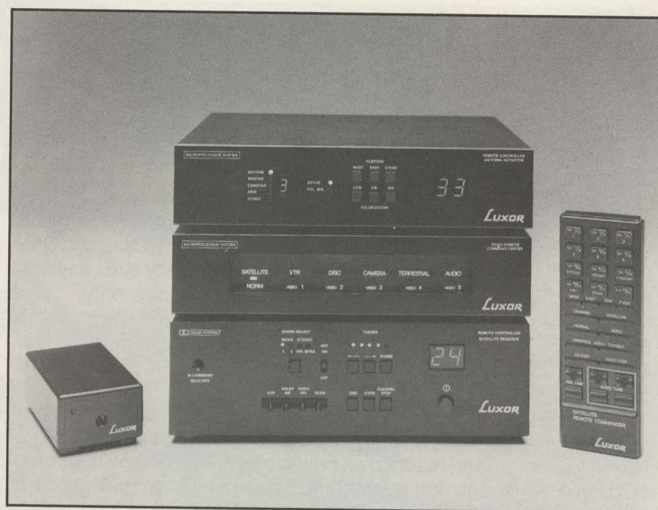
### 318 Features Include:

- Solid State IC Circuitry
- Drift-free AFC
- Fully tunable from 5.3MHz to 8.5MHz
- Loop-through composite video interface
- Multiplex stereo indicator light
- Single or Dual subcarrier demodulation
- Matrix or Discrete mixing
- Left, Right, Monaural channel outputs
- Narrow or Wide I.F. deviation selection
- Dynamic range expansion
- Canadian Filter
- Twin center tuning meters
- Automatic Volume Compensation
- Dynamic noise reduction

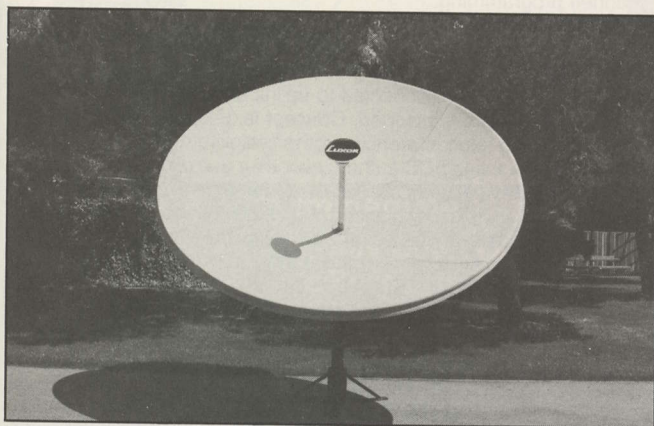
# ***The Receiver that Does It All!***

**The LUXOR 9500 Series has every feature your customers want.**

- Channel and satellite selection with one infrared hand-held remote control
- Programmable full range audio with Dolby stereo, expansion and wide/narrow deviation
- New extended threshold sensitivity
- Automatic polarity switching and skew
- Optional remote and sensor for control from any room
- Microprocessor channel, satellite and mode control
- Dual feed multiple receiver option
- Completely weatherproof remote downconverter
- Built-in Channel 3/4 RF modulator



# ***The Antenna that Gets It All!***



**The LUXOR Model 1072 Parabolic Satellite Antenna gets all the signal for clearly superior reception.**

- 72% aperture efficiency for 40.8dbi gain
- Cassegrain Polarotor backfire feed
- Tested for 12 GHz and 2.5° spacing use
- Prime focus option for high interference areas
- 10' four piece precision construction
- Mil quality reflective fiberglass
- Clean, aesthetic design, easy to assemble
- Full 10 year warranty; will not delaminate

# ***The Distributor that Has It All!***

**TransVision: Your one source for best product, best price and best service.**

- 24-hour shipping/order processing
- 24-hour repair turnaround
- Full staff of engineers and technicians
- Full stock of systems and components
- Receivers, LNAs, actuators, cables, accessories
- Dishes from 7' to 20' — fiberglass, mesh or metal
- Complete testing of all product lines
- Money-back guarantee on all goods



# **TransVision 415-924-6963**

© 1983 TransVision Corporation, 2100 Redwood Highway, Greenbrae, California 94904

## TRANSPONDERS/ continued from page 58

being built by Bulgarian technicians with Russian dollars and assistance. Rumors that a new Russian bird will appear soon at 14 west position, possibly further west and possibly with far more powerful downlink signals, persist. Present Ghorizont at 14 west is slightly past normal retirement date.

**FCC** did the expected and approved 'interim DBS' in the 11.7 to 12.2 band; previously set aside not for DBS but rather for 'Fixed Satellite Service'. Decision clears way for three firms, including COM-SAT's STC, to begin DBS using slightly lower frequency birds anytime they have the programming in line and the birds ready to fly.

**HBO** has gone international by joining forces with CBS and an English film firm to create a 'European HBO service channel' for European cable services. Debut date is first quarter of 1984 via ECS bird.

**TOSHIBA** plans to enter DBS market in spring of 1984 with a monthly production and shipment quota of 5,000 units through 1984. No decision has been reached on how the packages will be marketed or installed, although firm is concerned that installation may not be a 'do-it-yourself' practical package and may require professional installers.

**NASA** and Canadian government have finally agreed to attempt to create a test using a Canadian designed experimental satellite for vehicular and hand held satellite two-way radio/telephone communications. The concept is that a small whip antenna on a vehicle, or on a hand held unit, 'talking' directly to a satellite, would come back to earth at a master control center where automatic connection to the terrestrial network would be made. The downlink band being considered, subject to US FCC approval, is in 806-890 MHz band.

**JAPAN** may not have DBS until 1989. Recently announced plans center around use of BS-3 satellite which is not due to launch until near end of decade. They plan to allow 8 channels of service.

**AFSAT**, African continental satellite system to be shared by numerous countries, is closer to reality. An agreement has been reached and ratification is underway by countries working on plan. Present plan calls for a pair of operational 24 transponder (C band) satellites, servicing about half of the 46 African nations.

**JAPAN** has pioneered 20 GHz down, 30 GHz up operational satellites by putting Sakura 1 into operation early in June. The satellite is the first in the 'higher band' to be taken out of the experimental stage and can handle up to 4,000 simultaneous telephone calls. No television on this one.

**NEW** 24 hour per day TV service between west coast of USA and Japan is intending to begin service this coming April via Intelsat. NHK and other Japanese television network operators will share costs of service and time to carry news, sports, and special programs from US

mainland into Japan.

**WESTERN UNION** is in a hurry to get WESTAR 6 into service. It held a spot on Ariane launch schedule for next April; has canceled that spot (and forfeited downpayment) to sign instead with NASA for earlier launch this January. Apparently this will allow SPACENET to launch in its place for 122 west station by late April.

**GALAXY 1**, brand new Hughes bird at 134 west with 9 watts per transponder, on station and preparing for cable programming. Bird will take awhile to get into full operation and may be year or more before even half of transponders are in regular use.

**FORD** Aerospace and India have agreed formally to construction of third INSAT 1(C) bird. INSAT 1B scheduled for launch this month by shuttle. 1A had unfortunate problem with solar panel and was expensive loss.

**TRDS(S)** finally arrived on station after numerous thruster burns to correct improper initial launch sequence. Second TRDSS bird will not go before next April, setting back numerous scientific projects tied to operational pair of birds.

**SIGN** of the times; original FCC licensing period for satellites licenses by FCC had been five years. Now it has been expanded to ten by Commission order.

**MUCH** rumored Group W sports network(s) for Galaxy 1, using five or more of the GW transponders there, will not start up until April of '84. Service will be regional, allowing each area of country to have customized professional/collegiate full time sporting channel feeds with a 'wrap around' national service similar in concept for SNC (news channel) programming.

**IF YOU** want to know status of TDRSS bird, you can get official statement from recorded announcement by dialing 301-344-0893.

**HOME** of the future? A 900 plus acre facility where every home in project will be directly connected to uplink and downlink systems in Alameda, California is planned. Concept is 'telepark' with instant in home access to teleconferencing, other satellite delivered services.

**COMSAT** fighting FCC authorizations for use of domestic birds to deliver television and other services to countries in Caribbean, Central America. FCC had used 'blanket authorization approach' to speed individual requests for approval and COMSAT says that is not in keeping with earlier national policy or international agreements.

**NEXT** generation INTELSAT birds (VI) will launch in 1986 on Shuttle. Decision is considered victory for US launch system with Ariane as stiff competition.

**SATELLITE** Syndicated Systems, owner of common carrier for WTBS and holder of various programming and pay TV operations, is going from private to public with initial sale of 2 million shares of stock.

**INTELSAT** predicting continued growth, but at a slower rate, over next four years for international telephone services via system. Predictions are that number of call-minutes carried will increase 80% over four year period.



SAT SCENE/4 PM ET TR3, Westar 4; August 11th. Canadian Doug Saxson discusses first Canadian home TVRO show.

## COOP/ continued from page 5

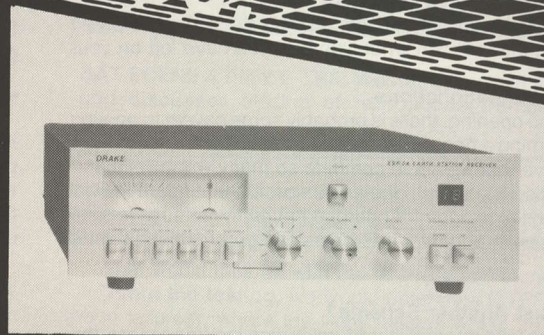
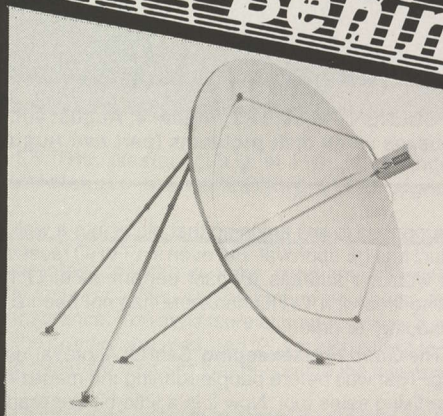
told the board he'd be able to work with that arrangement.

"Would a 50-50 split be a place to start?" I asked Schneringer. He said they could start there. And so a committee of two, ICM's Royden Freeland and Birdview's Bud Ross, agreed to meet with STTI's Schneringer to try to work it out. That seemed like a sound first step towards resolution of the conflict and Schneringer left the room. Taylor Howard again. "I think we would be better off doing an 80-20 split; 80% to Schneringer" he suggested. There was some discussion. And finally a vote. When it was all over Ross and Freeland were empowered to work it out with Schneringer for the best deal SPACE could get; down to a 50-50 split.

I would like to be able to tell you that as of this writing date the matter has been resolved. But indeed it has not been settled. In fact, early in July the two sides are much further apart than they were before they had the 'blood letting session' in Minneapolis. SPACE has been under tremendous pressure from the industry suppliers to resolve this issue. Nobody wanted to be placed in the position of having to decide between a SPACE show or an STTI show, in Vegas, one

If you plan to stay in business...

You Need  
**Andrews Electronics**  
Behind You!



- \* Immediate Off-Shelf Delivery On All Drake Products
- \* Full One Year Parts and Labor Warranty On All Drake Receivers Purchased From Andrews Electronics
- \* Fastest Repair Service on Drake Receivers
- \* Extended Warranties Available (to add to your profit)
- \* Dealer Support Packages Available

*"Serving You Is Our Technology"*  
Ask About Our Generous Quantity Discounts

**YOUR  
DRAKE  
PLACE**



**DRAKE**

AUTHORIZED DISTRIBUTOR



**ANDREWS ELECTRONICS**

439 Warwood Ave.  
Wheeling, WV 26003

**(304) 277-4600**

## COOP/ continued from page 64

week apart this coming March. The shows were too close together to allow people to go home and come back; and too far apart to run more or less parallel. Obviously both were going to suffer and it was a very messy situation. So by early on Friday morning, the 24th, SPACE had drafted a 'press release' which told the industry that at the June 23rd Board of Directors meeting SPACE had met with Rick Schneringer and they had agreed to **try to work out** some type of accommodation. The press release mentioned possibly joining forces to do one show, and having a 50-50 split of the show's responsibilities and net income. Remember . . . a trade association puts on shows to raise monies for the general coffers. SPACE was counting on raising money at its two annual shows to help pay the increasing costs of litigation and attacks on the industry.

SPACE 'wall papered' the Can/Am '83 show with this press release; apparently with the best of intentions; to tell the industry some positive steps had been taken to try to work out the problem. Alas, Schneringer responded to the release by making another one of his famous threatening telephone calls. This one went to Brown. "SPACE will never again print my name. SPACE will never talk about me. SPACE will never again come into any show I am running," He concluded by telling Brown "If you ever do any of these things I will hit you with a lawsuit that will curl what little hair you have left on your head".

**So much for the negotiations.**

Like I said in the opening, there is probably some caveat to printing such detail concerning a board meeting. But this one was a doozy. It is difficult to believe that we could combine so many worthwhile and forward thinking discussions into the same session that heard invited guests questioning the ancestry of board members. We'll survive all of this, and probably be stronger for it. But the road gets rockier all of the time!

**INSURANCE / Just Another Scheme?**

I probably have less interest in understanding insurance than the average man of 45 years of age. I also probably have the least organized insurance program, to protect my own family, of anyone I know. That does not mean I do not appreciate the value of insurance, nor the importance of keeping a good handle on insurance. When you have a family, or a business, that you have worked very hard to maintain, it is only good common sense to provide for that possibility that you may not be able to pick the day and date and point in your life when you will no longer be able to care for those things and people you love.

When the April CSD issue came out and we asked readers to tell us just how they were getting along with various parts of the home TVRO system, and various suppliers, I went into shock. Not because we have a very decent response to the survey forms for equipment reliability and factory make-good. But because I found so many dealers and distributors pouring out their problems on letters attached to the forms.

It only took me a few days to realize that the typical dealer was operating almost blind and on 'good faith' when he or she set out to select equipment for stock and installation. The typical dealer was obviously impressed with slickly prepared four color brochures. There was no other explanation why some of the really bad pieces of junk were selling. The products were being merchandised to unsuspecting buyers who were impressed with the glossy photographs.

I also knew that the efforts of the SPACE group to create 'industry performance standards' was terribly bogged down. Dozens and dozens of dealers wrote asking if there was not some way they could get an independent testing agency to check out equipment and publish honest, unbiased listings of good and bad equipment. SPACE's Technical Standards Committee had started off on just that premise. And it stalled quickly because when you got right down to it, there were at least some manufacturers who didn't want standards for the industry. Firms turning out inferior gear certainly don't want some sort of mandatory testing program in operation.

There aren't really very many industry standards programs in the world that **really work**. UL approval is supposed to amount to something. But it only deals with the safety of the appliance or product vis-a-vis electrical shock hazard or fire safety. In many states you are



**SAT SCENE/4 PM ET, TR3, Westar 4; August 4th. Mike Gustafson discusses small dish problems (part two August 11th).**

not supposed to sell anything that plugs into a wall outlet unless that product has UL approval. But even if a TVRO receiver had UL approval, it wouldn't address product performance. Only product safety. Starting fires with TVRO hardware has not been a major problem in our industry to date.

The **Good Housekeeping** 'Seal Of Approval' used to mean something. That was before people running the magazine turned it into an advertising sales tool. Now it is a little bit like reading a good equipment review (i.e. a favorable equipment review) in an electronic magazine. Just a few pages away from the glowing review is a page or two of four color advertising from the firm producing the product reviewed. You buy some ad space, you get a good review. Not terribly ethical of course and when you play that game a 'Seal Of Approval' loses much of its importance.

**Consumer Reports** is an independent publication that accepts no advertising. They just run about the country buying or borrowing products for test. And then writing up what they find out. They love to rate similar products from 'best' to 'worst' and that seems like a decent thing to do. They had great credibility a few years back but somehow you see fewer and fewer manufacturers quoting CR anymore. I guess they also blew it.

The US government rates automobiles for gasoline efficiency. One would think that this would be an unbiased testing program. But how many people do you know who can actually get 42 miles per gallon out of a Toyota? I'd like to meet the guy that does this test driving. He must have a featherweight touch. And, sadly, EPA mileage statements are now totally worthless.

Through all of this, some simple common sense element seemed to be missing. And I wondered what it might be. Either the people who do the testing are easily corrupted, or, they must be unqualified to do the tests claimed. Perhaps the answer was more 'American' than that. Maybe what was missing was a testing program that worked to the benefit of everyone involved; not just the consumer, or the publisher, or the manufacturer. Sure I was on to something, I asked myself how could a testing program be created that would benefit **everyone** involved?

I remembered that one of the people I had met down here on Provo was one of the giants in the insurance industry. He was especially creative in the area of warranty work. In case you have never thought about it, an extended warranty from, say Chrysler, is really nothing more than an insurance program. **Chrysler** doesn't **really** warrant that your new car will last 5 years or 50,000 miles. **An insurance company does.** Chrysler takes your name and address as a new car owner to a consortium of insurance firms and Chrysler pays the insurance firms a 'premium' to buy you an insurance policy. They in effect sell the cost of the warranty coverage to a large insurance



SAT SCENE/4 PM ET, TR3, Westar 4; August 11th. Mark Anderson, Chuck Walsh discuss rebroadcasting TVRO signals through the air.

carrier who then guarantees that the warranty program will protect you. You can buy life insurance. You can buy travel insurance. You can buy automobile insurance. You can insure almost anything, if you are (1) willing to pay the premiums asked, and (2) are also willing to do everything you can to minimize the risks you present to the insurance company.

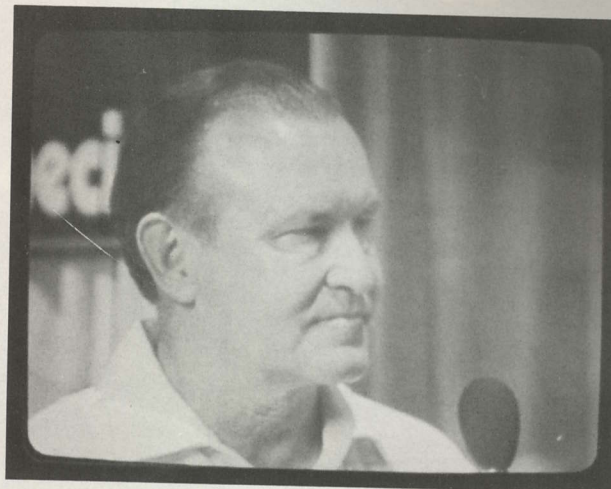
**Bill Young.** That's the name of the man I took my problem to. Bill Young is on the front cover of **CSD** this month. "Bill" said I "How would you help a brand new industry create a warranty package which would take the last guy in the distribution chain, the installing dealer, off the hook when products fail?"

My idea was this. If I was a dealer I would like to be able to tell my prospective customer "**No matter what happens**, whether the LNA fails or the receiver fails or the antenna is struck by lightning or they move the satellites closer together and your antenna no longer performs properly; no matter what happens, I have an optional insurance/warranty policy here which will guarantee you that somebody will come out promptly and repair or replace the broken part or the system."

I told Bill "I want a policy that completely puts the mind of my prospective customer at ease. **I want them to know** that the usefulness of their TVRO system is guaranteed; say for three years initially, and then on a renewable annual basis after that. I want a policy that tells my customer that if I die, or if I go out of business, somebody with a bunch of credibility will step in and fix the system. No matter what. I want to be able to look my customer in the eye when they say 'What about this scrambling thing?' and answer that this policy guarantees them scrambled reception from **as many channels** in three years as they have the day I turn the system on".

Bill took the problems and headed back to Maryland where he has his main office. A few weeks later he attended the ROBS group meeting in Boca Grande, Florida (see **CSD** for July '83) and he met with and talked with several of the industry leaders attending. Then he came back to Provo and brought with him an airplane filled with big-whig insurance company types. Underwriters and engineers and guys like that. They had spent a month or so doing a detailed study of our business. And to my satisfaction they had identified, by getting out in the field and asking questions and visiting TVRO manufacturers and dealers, just where the real problems were. They were intensely interested in helping our industry find an 'insurable solution' to our youthful problems. And for the best of reasons. They felt that as an insurance industry, they could make some money from us. That's fine; I don't expect anyone to give me something for nothing.

"**The first thing we will have to do** is to arrange for complete testing of all of the equipment in the industry" this insurance engineer



SAT SCENE/4 PM ET, TR3; Westar 4; August 18th. Keith Anderson discusses origins of rebroadcast/translator service with Coop.

said to me. I asked him how that would be done, and who would pay for the testing. "We have tested everything from Caterpillar diesel engines to pencils" the engineer told me. "And, we'll pay for the testing".

What would they do with the test results, I wondered.

"**From the testing**, we would determine MTBF (mean time between failures), where the likely failures would be, and the proper installation procedures. In fact, after testing, we would issue a **list** of all products that passed the tests. Those that pass the testing program would be eligible for insurance/warranty coverage. Those that didn't make the grade would be eligible only after certain identified weaknesses or defects were corrected."

I smiled. There it was! A way to get some outside, unbiased group to test our products and create a list for us; a list that told us **which products** were suitable to sell and which were not suitable (those that were not would simply **not be listed**). And the system had a built-in honesty factor.

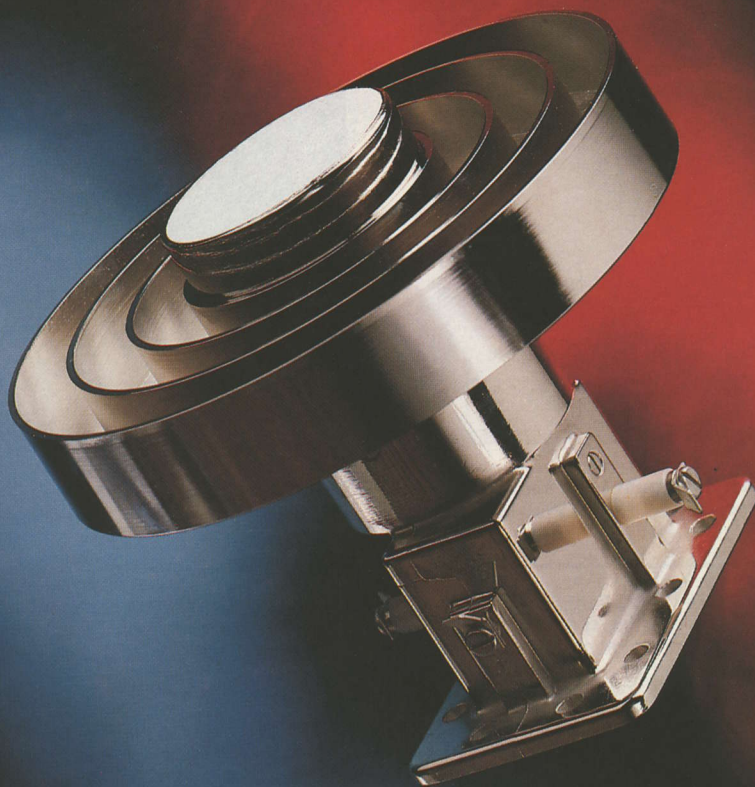
1) The insurance industry would not want to exclude **any** products if they had their druthers. Afterall, a product that could not be insured (because of defects that came out in testing) was one home system that they could not sell an insurance/warranty package to.

2) But, they were **not** going to insure products which might increase their loss ratios. They would be entering this business because they expected to make some money. So when a product got left off of the 'approved list' it had to be for good cause.

The checks and balances seemed to be in place. And best of all, we got ourselves out of the quagmire of creating an 'industry board' to establish standards and approve products for sale. Now we might get our 'standards' without all of the blood letting that would go with listening to **Andy Hatfield** and **Clyde Washburn** battle out whether a 8 dB threshold or a 9 dB threshold was 'honest'. The insurance folks would have a much simpler bottom line position for all of this. If the equipment worked, and it showed proper design that indicated it would continue to work for three to five years, or longer, without causing the consumer grief, it would be approved. If it didn't meet that criteria, well, back to the drawing boards.

I was pretty excited about all of this when I suggested to the insurance folks that they attend the Can/Am '83 show in Minneapolis. I wanted them to see just what a bunch of individuals we have in this industry, to judge the way we build and display and market our products, and decide whether we were really worth all of this study. They had spent, they told me, about \$75,000 in research time on this

# YOUR TVRO SYSTEM IS STATE OF THE ART.



## What about your polarizer?

Only one polarizer offers you the reliability of digital solid state at low cost: M/A-COM Omni Spectra. With no moving parts to freeze up or meltdown – no motors, rotors or gears – the low loss M/A-COM Omni Spectra polarizer offers you top quality reception, whether you're in Anchorage or Anaheim.

Even in the harshest environments, this polarizer is completely phase and insertion loss stable. But that's just the beginning.

Because it's digital solid state, this polarizer never needs adjusting, after installation. It even features



**Omni Pulse Decoder**  
Low cost receiver compatible adapter  
Part # 4850-4004-00



an adjustable scalar feed to achieve maximum gain from every antenna. Satellite skew is automatically compensated for.

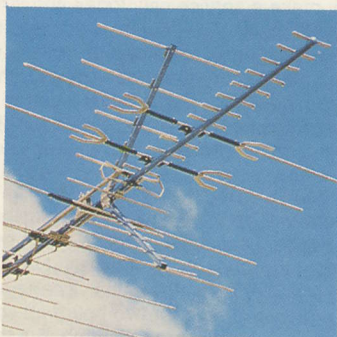
In-line design makes the M/A-COM Omni Spectra polarizer easy to install. And with low cost electronic adapters, it's completely receiver compatible.

Best of all is the backing of an industry leader: M/A-COM Omni Spectra. For the name of the authorized dealer near you, call (603) 424-4111 or write: 21 Continental Boulevard, Merrimack, NH 03054.

**M/A-COM OMNI SPECTRA, INC.**

# Channel Master<sup>®</sup>...

## You're going to like selling to the people that know us.



World's Largest Antenna Manufacturer



No. 1 Antenna Amplifier sold in the U.S.



World's Best Selling Rotor

They're the people in suburban and rural markets that already depend on Channel Master high-gain TV antennas and amplifiers for their TV reception. They're some of the users of the 21 million Channel Master outdoor TV antennas sold over the last 34 years. They're the people in over 8 million American homes with a Channel Master antenna rotor control box in their living room.

**Most of our competitor's names may be well known to us in the satellite "trade" but to the average consumer they mean absolutely nothing.** Over the past 34 years, the Channel Master name has become synonymous with superior TV reception, recognized again and again by leading consumer testing magazines.

You clearly benefit from this reputation, as well as by having a single, brand-recognized name to sell....not separate names for the dish, receiver, LNA, polarizer, dish controller and stereo processor. And not separate warranties or service centers, either.

When you offer Channel Master earth stations to your prospects, the chances are very good that they've heard of us and our reputation for high-quality reception. And, people will pay you more for this. You'll close more sales because your prospects will have more confidence in what you're selling....and in you.

Check it out. And let our Distributors show you satellite TV the way it's supposed to be. They're ready with inventory and technical assistance to make your life easier in this hectic new industry.



Channel Master....dedicated to better reception since 1949.



Deluxe Receiver with Optional Remote



SATSCAN<sup>®</sup> Dish Controller



Stereo Processor

**We need** new dealers and distributors for selected markets who can specialize in this new and growing industry. Please write or call Don Berg or Phyllis Fisher for immediate consideration (914) 647-5000.

**SPACE**  
The Voice of the Satellite  
Earth Station Industry



**CHANNEL MASTER**  
SATELLITE RECEPTION EQUIPMENT  
DIVISION OF AVNET, INC., C883, ELLENVILLE, N.Y. 12428

COOP/ continued from page 67

project to date. They agreed.

Bill Young, being a neighbor here on Provo (he is building here and came to Provo several years before me), asked if we might go to Minneapolis together. What he was really asking was for me to arrange for him to meet with some of the industry's leaders. He wanted to discuss the program with those folks to see what their objections might be. Since Bill is one of the world's culinary experts and when you eat with him you are treated to the very best of everything, I readily agreed. I knew I'd eat well for three days anyhow.

In Minneapolis I watched Bill meet with people such as **George Jones** (Conifer), **Guy Davis** (Intersat), **Larry James** (Patmar), **Syl Herlihy** (Channel Master), **Steve Bland** (Hoosier) and many more. I listened intently and wondered where all of this might be headed.

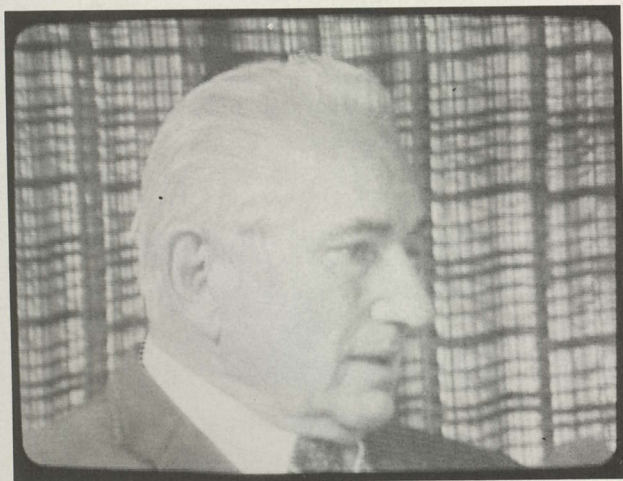
Bill Young wanted to pin down the typical product cost, in the field. He liked to use a mythical \$3,000 terminal (retail cost) to illustrate two points about the insurance and warranty. "Until the insurance program is totally complete, until every possible cost factor, and the risk factors have been pinned down, we cannot quote an annual 'rate' to the consumers. But, **let's assume** that the total cost of the package was 6% of the retail cost of the package; in other words, 6% per year for three years. For a \$3,000 total replacement cost for a system, we are looking at 6% per year or \$180 per year".

**Conifer's Jones.** "The trend is not to better quality systems for big dollars. The trend is to lower quality systems for lower dollars. The \$995 retail system is not far away. I'm not sure the person who ends up buying a \$995 system is even going to care about guaranteed performance for three years".

Young. "**Remember that the cost** of the full protection package will be a percentage of the retail price of the system. Six percent of \$995 is a third of 6% of \$3,000."

Jones. "I understand that. I am simply suggesting that when the user price on the package gets very low, people become less concerned about it not working. It comes closer to being a disposable or throw away product".

Young. "I don't think many people will be willing to throw away a grand. Look; the dealer has an opposite problem with cheaper systems. He knows, or he should know, that the less expensive systems can't have the performance of the better systems. They are also more apt to get out of adjustment, or fail, sooner than their big brothers. Unless the dealer plans to install the system and walk away, offering no warranty or guarantee of his own, he is going to be on the hook to see that the system keeps on working. Typically for no less than a year. It may turn out that the dealer is smartest to offer or push the guaranteed performance package to the lower cost packages. Remember that the dealer is being protected by this policy as well".



SAT SCENE/4 PM ET, TR3, Westar 4; August 25th. STTI's Schnering discusses the problems of running shows.

Jones. "How's that?"

Young. "If the dealer has to make a service call, today, the time and travel is on him. Let's say an LNA quits. The dealer has to travel to the location, determine what is wrong, and then repair or replace it. Even if he gets a new LNA from the factory as a replacement, the dealer is out his time and travel expense for going to the location a couple of times. Under this program **the dealer would be paid for his time** and travel to go out there, determine what is wrong, and repair or replace the problem."

Jones. "In other words the dealer is paid for his mistakes?"

Young. "No, not at all. There will be an established table that everyone has available. There will be a set schedule of so much per mile of travel, and a flat fee to cover the labor of replacing an LNA. If it takes four man hours to install a brand new small terminal, it certainly is not going to be practical for a guy to charge for two hours on-site time to replace an LNA. The insurance people are not dumb. But the dealer **will be paid** for his time. Now, if he does this as part of his own guarantee program **he** stands or pays the cost of the time involved. It comes out of **his** pocket. But, if the system is protected by the performance package, the dealer at least has **HIS** costs covered. The concept of insurance is not that people who are protected make money on the coverage. It is that they don't lose any money. Their costs are covered."

**Intersat's Guy Davis.** "There is a popular school of marketing thought in this industry today that the selling of home terminals is price conscious. Or, that if you want to sell more terminals, you have to bring the price down, and down, and down. Any additional cost, **no matter what it may be for**, is a hurdle for many people to overcome. I'm concerned that dealers will be so frightened of losing the sale that they may simply skip telling the consumer about the optional performance guarantee package. They may fear that mentioning an additional cost factor, even if optional, might cause them to lose the sale."

Young. "That's because people now selling the equipment are not using the best sales tools available. I have an answer to that. Universally available, nationwide, consumer financing. But it has to tie to the insurance/warranty package. Suppose, just for discussion, you could offer a customer three separate packages. The first package would cost the consumer \$199 down and \$65 a month for three years. Built into this is all of the equipment, the installation, and the three year performance guarantee package. The second package has better quality equipment and let's say it would sell to the consumer for \$349 down and \$79 a month. Again, that is all inclusive. Finally there is the top of the line package; \$499 down and \$95 a month. Now you have switched from offering the customer **a decision** ('should I buy, or should I not buy') to offering the customer **a choice** ('which one of these three packages would you like?'). This is a credit based economy. I understand that around 98% of the systems now sold are sold for cash. That puts the dealer in a bad spot. He has a retail, installed, package that he sells for \$2995. He hopes to clear \$650 after installing the package. The consumer looks at the system and haggles. **'I'll take the package but all I can afford is \$2700'** he says. The dealer has to decide whether cutting his \$650 profit to \$350 is necessary. Some times of the month or year it is worth it; he needs the cash flow. Other times of the month or year he can sell more than he can comfortably install. But when this happens the customer reverses the role with the seller; **now it is the dealer that has to make a decision!**"

Davis. "Are you saying that there is more to this plan than guaranteed performance? That a dealer participating in this would also have financing available?"

Young. "Exactly. This is a deficit financing economy. The vast majority of the consumers don't really look at the final **price** of a product; they simply look at their monthly budget and calculate whether or not they can fit the payments into the budget. What the dealer has to do here is focus on the end result of the sale; the entertainment value offered to the consumer/user. And by offering financing as part of the plan, he now has a method of changing the focus from that big lump sum payment to small bites that the consumer can equate with. The consumer is going to be using the product daily; why shouldn't he pay for it daily? Most people don't pay cash for a car; they finance the car at GMAC or one of the auto credit firms **and they pay for it as they use it.**"

Davis. "When you go into a GM dealer it's true that you do have the option of using GMAC financing. And you have the option of using GM

insurance if you wish. Suppose the dealer for TVROs was part of this program; would he have to offer the financing plus insurance plan or could the buyer still opt to pay cash?"

Young. "Of course they could pay cash if they wished. What I am saying is that if the dealer sells a system on time payments, **there has to be full insurance/warranty protection included** in the sale price. The reason for that could be obvious; the people who will supply the line of consumer credit for TVRO sales will insist that the system be fully insured and fully protected for warranty or repairs **before they will extend financing terms**. You can't drive a GM car out of the showroom unless it is insured, when you have GMAC financing. The lender has got to know that no matter what happens to the product itself the consumer will be able to pay for the system. There will even be optional, at slight extra cost, life insurance available so that the terminal will automatically be paid off if the consumer dies during that three year financing period."

Hoosier's Bland. "That is a very attractive package since it does give the dealer several very effective, new tools to sell with. How much funding might be available in this program?"

Young. "I have an initial commitment of \$300,000,000. Using my mythical \$3,000 packages, that is 100,000 terminals that can be financed in the first year."

Bland. "I'm not sure how the distributor would fit into this. I can see how the OEM might want to be a part of it however. I certainly would consider urging my dealers to be a part of such a program. Anything that will help them sell more product is good for me. And if they have the assurance that the equipment is protected by an extended warranty, that really makes my job easier."

Young. "There is more to the package than simply giving the dealer a tool for more creative salesmanship. Let's return to the mythical \$3,000 terminal. And let's assume the dealer can in fact clear \$650 net profit after putting in such a system. Now, let's finance that system, with the built-in insurance and warranty package. **We don't expect anyone to do something for nothing**; no matter how good it sounds to them. Let's break out the cost of the insurance and warranty package over three years and make another assumption; that it

comes to \$450 which is \$150 per year. The way I envision this working is that the dealer would be paid a sum of money, up front at the time of sale, for making the insurance/warranty part of the sale. And just for discussion, let's assume that the amount of money the dealer makes for this exercise is \$150. Now he has a \$650 profit **plus** a \$150 insurance package profit; or \$800. Right away his system **sale profit** has gone up 23%. Then the dealer would participate in the profits on the financing package. Without being held to any specific numbers, it could amount to 3% of the three year terms. And that could then be another \$270 (3% of \$3,000 x 3 years). Now the dealer's profit from the sale is \$800 **plus** \$270 or \$1070. **That's a \$420 increase over the cash sale profit on a stand-alone, not insured system. And that amounts to a 64% increase in system profit for the dealer.** For this extra profit he has done nothing but fill out a few extra forms."

Davis. "It also appears to me that with that kind of extra profit to work with that a dealer would graduate from a one or two man operation to a far bigger operation. He could afford to pay a salesman or two just to sell. He could also afford to hire a couple of men just to install. Having more money to work with could make a tremendous difference to the type of dealer **system** we now have in the industry."

Young. "No question. The typical dealer, as I see it, is a single man who hires some extra help to make the installations. He evaluates and buys the products; he sells. He schedules the deliveries and installations and he makes the installations. When something breaks, he tries to fix it. He is a jack of all trades . . ."

Patmar's James. "And he probably doesn't do any of those jobs well . . ."

Young. "Precisely. The only way the dealer can lose on this program is if he is not capable of handling all of the new business, and cannot adapt himself to being a business manager rather than a jack of all trades."

Bland. "How much more product could a dealer move with a program such as this? I'd estimate 50% as a minimum; perhaps 100%."

COOP/ continues page 74

# AVM-100X

## AUDIO-VIDEO MODULATOR

### IN STOCK



- Crystal Controlled Master Oscillator
- +15 to +55 dBmV output
- Integral band-pass filtering
- Image and Harmonic Rejection: 55 dB minimum

- Any channel: Low, Mid, High Band, VHF
- Four Level Controls: Audio and Video Mod, Sound and Output

#### PICO SATELLITE, INC.

A SUBSIDIARY OF PICO PRODUCTS, INC.  
415 Gator Drive, Lantana, Florida 33462  
(305) 588-7356



# Videophile Satellite Television

The possibilities of component audio come to satellite video.

Component equipment has become popular in the audio field for a lot of reasons. One reason is that the component philosophy allows a purist to upgrade any piece of a system as technology advances without having to replace the entire system at once. This basic idea has ushered in an era of specialty firms dedicated to advancing the art of a single link in the chain. They succeed because all of their efforts are focused on one discipline, not thinly spread over an entire system. EARTH TERMINALS™ brings this philosophy to satellite television. We concentrate on the single most important, most difficult element—the microwave receiver. No other part of the system has such a dramatic effect on picture quality.

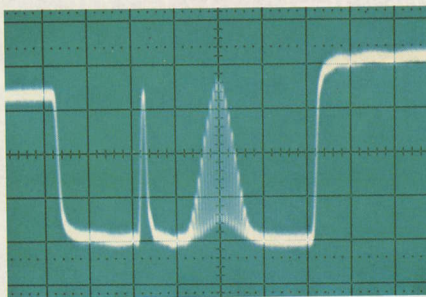
## Quality You Can See

An EARTH TERMINALS receiver provides cleaner pictures with less granularity. Truer colors that don't smear. Less sparkling snow on weak programs. Complete absence of herringbones and waves. Superimposed lettering that doesn't tear at the edges. In fact, you haven't seen video this exciting unless you've been in a television studio. If you own a quality video projector, you'll be even more impressed.

## Quality You Can Measure

Broadcast engineers are impressed with the accuracy of EARTH TERMINALS receivers too. Our VITS Sin<sup>2</sup> Pulse and video SNR test results are incom-

parable; actually the equal of most commercial grade receivers. We can also handle tough signals like Reuters data transmissions that give other receivers fits. It's no wonder then, that after exhaustive testing, some cable companies and television stations use EARTH TERMINALS receivers as their main source of satellite program material. They know value when they see it.



Unretouched Off-The-Air Sin<sup>2</sup> Pulse Test

## It's Easy To Live With

All this technical sophistication is really quite easy to get along with. Precise automatic fine tuning tunes every channel the same way every time. You don't have to be an expert to get perfect

pictures. EARTH TERMINALS receivers come with a remote control that selects channels individually, adjusts audio volume at your convenience, and automatically signals the rest of your system to supply the proper antenna polarization through an even/odd channel switch. And it fits in the palm of your hand.

## Tips On Value

There are plenty of satellite receivers that cost less than ours, but nearly all of them need bigger antennas and more exotic Low Noise Amplifiers for a picture free of sparkling snow. If you're on a budget, you can save money in other parts of the system by paying more for our receiver and come out even. You get high fidelity video in the bargain. If you're simply after the best picture money can buy, we can make it very affordable. Either way, give us a call or write us for the details.

EARTH TERMINALS  
Department 103  
One Microwave Plaza  
Cincinnati, Ohio 45242  
**513-489-6200**



# EARTH TERMINALS

# THE ODD (BUT PERFECT) COUPLE FOR ALL SMATV APPLICATIONS FROM PATMAR TECHNOLOGIES

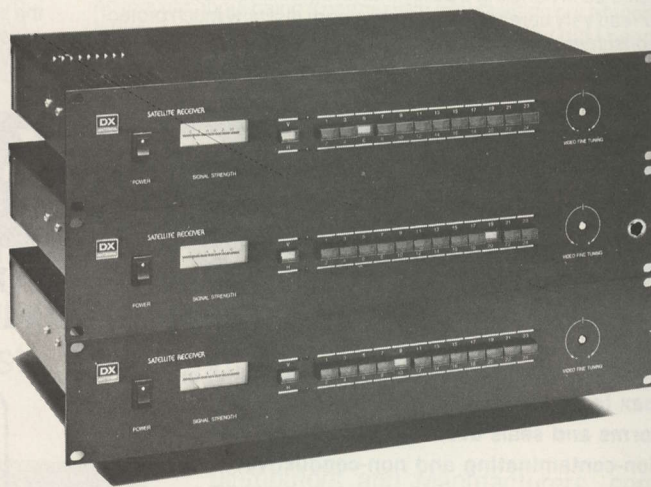


The Harris 3 meter Delta Gain Antenna combines the low weight and wind resistance desirable for SMATV installations with the high gain associated with much larger antennas. At the same time, its "deep dish" design with an  $f/d$  of 0.25 and modified Cassegrain monopod which shrouds the LNA's and feed assembly results in less terrestrial interference, low noise temperature and reduced side lobe interference. It also protects the LNA's from weather and theft.

It is available in both AZ/EL and Polar Mount configurations.

In cases where two or more satellites need to be accessed, multiple Harris antennas are cost effective compared to larger antennas with multi-beam feeds and will continue to work at tighter satellite spacings.

The DX Receiver and Block Downconverter is a commercial grade product with unique features for the SMATV industry. It enables the stacking of multiple receivers with the use of only one downconverter per polarity and the use of RG/59U coaxial cable instead of  $\frac{1}{2}$ " heliax, making the cable run from the antenna to the satellite receiver and MATV head end much less cost and labor intensive. It also eliminates the need for ferrite isolators and expensive power dividers. The receiver returns to the original channel frequency in cases of power fluctuations or outages.



The output frequency of the block downconverter is 0.9 to 1.4 GHz and its working temperature is  $-30^{\circ}$  to  $+50^{\circ}$  Centigrade.

Patmar Technologies also offers a complete line of SMATV

products such as LOCOM LNA's and the SMATV and MATV products manufactured by Blonder-Tongue Laboratories including the ESM modulator for adjacent channel applications.

## PATMAR TECHNOLOGIES, INC.

Larry James, P.O. Box D, Claremore, Okla. 74017 (918) 342-1955  
For orders call: 1-800-331-8900

Peter Sutro or Bill Heavener, 6 Claremont Road, Bernardsville, N.J. 07924 (201) 766-4408

COOP/ continued from page 71

Boiling down perhaps 12 hours of conversations, held throughout the Can/Am '83 show, into a few hundred or thousand words is difficult. I also run the risk of overselling something that is not in place yet.

I have considerable admiration for Young. I knew he was a high-powered, intense insurance industry type person when I first met him here on Provo. He has lived and breathed the problems facing the consumers and dealers in the home TVRO industry for several months now. He is one of those people who does his homework very carefully. I don't think very much of what he heard or witnessed in Minneapolis surprised him. I know nothing shocked him.

Putting a program such as this together requires very careful research and before it is even ready to offer to the dealers, I judge that Young and insurance cohorts will have spent well over \$150,000. That's a fair amount of money to spend just getting a product to market. That also represents some very expensive time from insurance industry people who don't mind telling you that they draw \$200,000 a year to be on hand when required. I know; several told me that when Young brought them by to see me.

There is at least one other insurance or warranty program now coming into the industry. I tried to meet with the people behind this at Minneapolis but failed to make contact. I guess they weren't looking very hard for me. Communications Protection Group of North America seems to have addressed the in-field repair problem more than the all-risks or all perils insurance part of the program. I read over their policy and found that there were many exclusions in fine print on the rear of the policy; exclusions which really could leave the consumer in a tight spot. For example, if a terminal rusts and falls apart or if the wind blows too hard, shouldn't it be covered? I'd suggest that anyone who is interested in handling a policy that is represented to protect the consumer read very carefully (and understand) just how much protection the consumer really does get for his money.

There is certainly room here for many plans and many different

levels of protection. Some dealers will be satisfied to offer a minimal protection plan just to be able to get themselves off the hook; others will want their consumers to be fully protected against all perils and all risks.

Young. "There are many less expensive ways to package something like this. But the insurance industry is smart enough so that they will always get enough money to protect themselves. The typical insurance plan, such as this, works on about a 6% margin. That means that after all costs of administration and claims, they hope to net 6%. Their own studies will tell them just how much they have to charge to maintain that 6% gross profit level. The insurance industry is one of the most regulated industries in the nation and outlandish profits simply do not exist. I think ultimately people in the TVRO industry will realize that good coverage costs more dollars."

The present game schedule for Young's plan is to introduce it no sooner than the Orlando SPACE show. And as I understand it, even if it is introduced at Orlando, it will not be available for sale until 1 January. In other words, a dealer who wants to be part of this program would sign up in Orlando, and then be able to start offering the financing and insurance and warranty in January.

One of the largest lead-time problems is of course the equipment evaluation. Young has to establish a very complete testing program, using both existing testing labs and a new facility devoted to the program. Then the products that will be ultimately approved have to be tested and evaluated and an announcement made that they do indeed appear on the 'list.' I have agreed that in the pages of CSD we will be able to run monthly updated listings of the approved products that can be insured. As I understand it, let's say there are ten antennas and four motor drives, and five LNAs and sixteen receivers and so on appearing on the approved list. A dealer can mix and match from the lists. As long as every part of the system is on one of the approved (by category) lists, the dealer knows he can offer a 100% guaranteed performance package. If the dealer selects an antenna that is not on the list, then he can offer only a partial performance guarantee to the consumer.

While I did take the initiative and go out and find Bill Young, and

Moldable PLASTIC

COAX-SEAL®

SEALS COAX FITTINGS  
FROM MOISTURE  
AND CORROSION!

NEW! Only material that will adhere to poly vinyl or vinyl outer coax jackets!

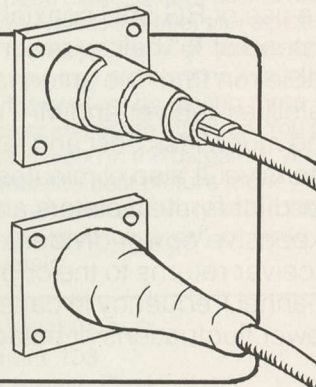
- Only material that will adhere to poly vinyl or vinyl outer coax jackets.
- Forms and seals over odd shaped and difficult fittings.
- Non-contaminating and non-conductive.
- Wide ambient temperature range ( $-30^{\circ}\text{F}$  to  $+180^{\circ}\text{F}$ ).
- Stays flexible for years thus insuring moisture proof connections.
- Reuseable - allows you to quickly disconnect fittings and reseal them with the same material.
- A must for satellite TV - microwave work - wire antenna at solder joints - in the shack.

Packaged in convenient  $\frac{1}{2}$ " x 60" roll. 2 rolls \$6.00 post paid.

DEALER INQUIRIES  
WELCOME

UNIVERSAL ELECTRONICS, INC.  
1280 Aida Drive • Reynoldsburg, Ohio 43068

COAX-SEAL . . . the new space age material that is quick and simple to apply. Remove backing from approximately 6" of plastic. Wrap outer covering toward fitting. After wrapping, knead to form a smooth surface and force out air. EFFECTIVE — FOOL PROOF — INEXPENSIVE.



FOR DETAILS on how to use COAX-SEAL to save you installation callbacks . . . see CSD for June '82 and April 1983!

spend the several days required to date to get his questions answered and direct his insurance industry people towards the right people in our industry so that their studies can proceed with maximum speed, I have no particular 'pride of authorship' with any of this. My interest in getting something like this started has been, from the beginning, to find some system which will make the industry's dealers stronger, and more capable of staying in business. My mind remains open on how best to do this and until the first program actually hits the industry and is available for sale, **I will withhold any overt or subliminal 'endorsement' of any program until I see all that are available.** For now, I think Young is not only on the right track, but his superb background and experience and resources are head and shoulders above anything else that I have had the chance to study.

You can be sure we will re-visit this subject again in the coming months.

#### THE Cooper/James Report

Immediately after returning from the Minneapolis Can/Am '83 show Larry James of Patmar Technologies joined Susan and I in Fort Lauderdale and then flew down to Provo with me. I've known Larry since his SatFinder days and have always found him to be bright, personable, and very talented. The primary purpose of his trip down was to give he and I the opportunity to work together on this month's "Piracy" feature in **CSD**. The piracy problem, as it relates to motels in particular and hotels and apartments and condos to a lesser extent, has been making me madder and madder for several months. I knew that Patmar had attempted to create a legalized system of offering premium movies (**The Movie Channel**) through authorized affiliates of course. Those who have been with us since last October will recall an interview I did with Larry on this topic in **CSD**. I also knew, in talking with dealers who are part of this program, that the program was in serious trouble because there has developed during the last year a slimy underground business of offering completely installed TVROs to motels and the like for a flat, one-time fee of say \$3,000. When I found out that the **Motion Picture Association of America (MPAA)** was commissioning a study into the extent of this problem, and that they

believed as many as 10,000 motels (plus who knows how many hotels, condos, apartments) were 'stealing' premium satellite programming without paying for it, I knew we were in big trouble.

The Patmar program has been especially hard hit. Legitimate dealers, offering legal connection to The Movie Channel and others, through Patmar, were running into stiff sales opposition. **"I can buy a far less expensive system from this guy over in Springdale, Arkansas"** says the motel owner "and, **he says I don't have to pay any movie fees.**" Obviously the guy in Arkansas cares not a bit about the legalities of compensating the movie folks. He is simply interested in moving trashy hardware for semi-premium bucks and beating it back into the hills of Arkansas.

Also on my mind, but not known to Larry when he headed down to Provo with me, was a concept of getting together a 16 page 'insider' news letter for TVRO dealers. There were two things motivating me here. Number one was that **CSD** comes out on the **first** of the month and it can be a long four weeks until the next issue comes out. In that four weeks, there are changes in the industry, changes in products, changes in pricing and changes in legalities which the dealer needs to know about. Promptly. Number two is that the present **SPACE** dealers, whatever the number might be, are paying relatively big bucks each year to be a part of, and support **SPACE**, but I don't feel they are getting all of the **direct** attention they should. Yes, it certainly is smart for a dealer to be a dealer member since his annual dues do go into the master budget pot to make it possible for **SPACE** to continue to fight **all of our** battles. But if I were a dealer, I'm not sure I would be totally contented to 'do my part' and not receive a more meaningful, direct benefit or two from **SPACE**. Monthly would be nice.

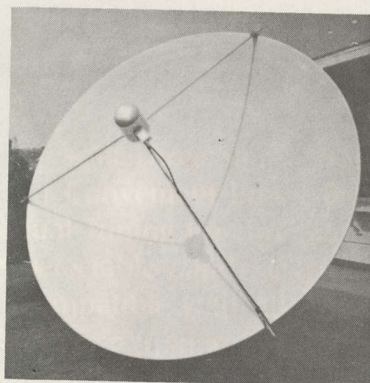
So while Larry was here on Provo, helping me repair all of the damage that had been done while I had been gone for ten days (broken TV transmitters, a totally disorganized TV production studio, a couple of LNAs that had quit for no apparent reason), I asked him what he thought about being a partner with me in putting out a monthly news letter just for dealers. His first question was **"Why did I need him?"**.

COOP/ continues page 78

## DH SPUN PARABOLIC ANTENNAS

We didn't invent or improve anything! We just manufacture in quantity the antenna that has always been best. An aluminum antenna spun to a true parabolic curve.

A spun aluminum antenna is the finest you can buy. The military, NASA, the telephone companies all specify aluminum antennas spun to a true parabolic curve. DH is a national leader in antenna manufacturing, producing over 3,000 antennas a month. Because of their accuracy, a 9' spun antenna will perform as well as an average 10' fiberglass.



Distributors and Manufacturers, contact us for quotes on quantity purchases.

Most sizes in inventory.

Available in aluminum or steel in focal lengths of 43" or 36" in sizes from 9' to 6'.

We also manufacture polar mounts and spun aluminum polarotor cover.

### DH SATELLITE

P.O. Box 239 - Prairie du Chien, WI 53821

Phone: (608) 326-6705

# AVCOM® *NEW Product Update*

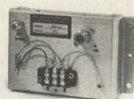
AVCOM • 500 Research Road • Richmond, VA 23236 • 804-794-2500

NEW  
from  
AVCOM

Toll-free  
OrderLine



COM-2A



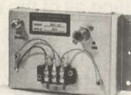
NEW  
from  
AVCOM

- \* Attractive Styling
- \* Scantune
- \* Tunable Audio with wide and narrow IF switch
- \* Comprehensive Remote Control (Standard with COM-2A, Optional with COM-2B)
- \* Sensitive Signal Strength Meter
- \* Remote Downconverter
- \* AVCOM Quality at a Low Cost

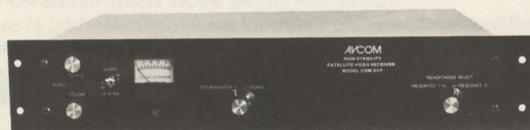
NEW  
from  
AVCOM



COM-2B



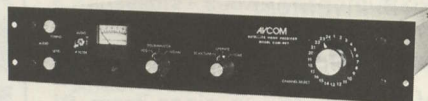
NEW  
from  
AVCOM



COM-20T

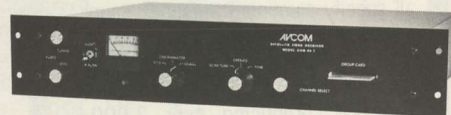
AVCOM's COM-20T High Stability Satellite Video Receiver is the answer to your need for a highly stable and reliable receiver for cable, private cable, radio stations, TV stations, BIZNET, News, Weather & Music Services, and other dedicated applications. The COM-20T can be factory or field adjusted to a particular transponder and will

remain on frequency without attention. The COM-20T is normally supplied with a remote downconverter and tunable audio. Optional configurations include fixed-tuned audio, internal downconverter, and downconverter switching for multi-channel capability. Styling matches AVCOM's popular series of rack mount receivers.



COM-66T

The COM-60 Series  
for  
Cost-Effective  
Multi-Channel  
Installations



COM-65T

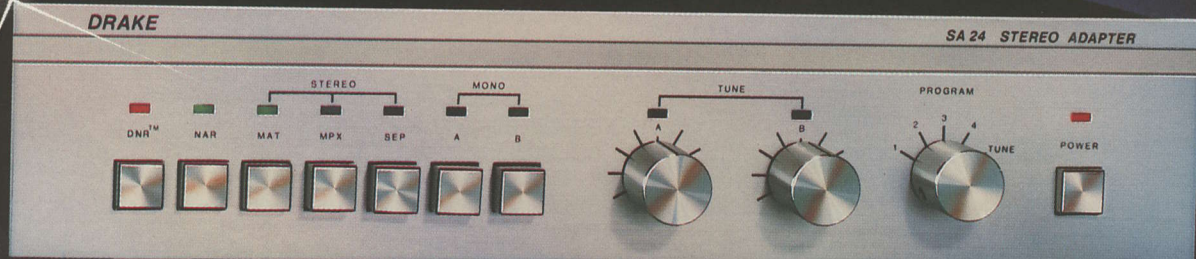
- \* Commercial Quality
- \* Compatible with SA's 6650 system
- \* Rack Mount, standard
- \* Double Conversion
- \* Flexible Downconverter (Use any degree and brand LNA)
- \* High Stability

NEW!

AVCOM's Toll-free OrderLine 800-446-2500 (Orders Only)

All other inquiries phone 804-794-2500.

# STEREO ADAPTOR



## SA24 MULTI-MODE STEREO ADAPTOR

- Receives All Three Stereo Transmission Modes
  - Four Convenient Preset Program Formats
- Full Manual Tuning for Any Subcarrier Configuration
  - Selectable bandwidth • Mono Mode
  - Compatible with All Stereo Amplifiers
- DNR™ Noise Reduction System Reduces Hiss and Background Noise
- Attractive Styling Matches Drake ESR Series Earth Station Receivers

\*DNR™ is a registered trademark of National Semiconductor.

Write for Brochure or See Your Dealer



R.L. Drake Company  
540 Richard St., Miamisburg, Ohio 45342, U.S.A.  
Phone: (513) 866-2421  
Telex: 288-017

PIONEER MEMBER OF  
**SPACE**

COOP/ continued from page 75

The last thing I need this year, or next, is a new publication. I can barely handle the one we have and still find time to swim every day. Larry is plugged into many of the same industry sources or news makers as I, and after watching him operate for three years or so I had developed the feeling that he was one of the more intuitive people in our industry. In case you hadn't noticed, all it really takes to publish in this field is intuition. Knowing what is right, and when it is right. Or wrong, and why it is wrong.

So I had sat with Rick Brown in Minneapolis and asked him what I could do to help the SPACE dealer program. My first statement to him was that I wanted to help, as in volunteer. I was not interested in receiving a penny from SPACE. Quite the contrary, I was only interested in giving. Rick asked me if I thought I could put together a one day dealer seminar program for Orlando. **"Like the good old days when people jammed the rooms to capacity to learn something they needed to know."** I said I could, and would do that. I have a long list of people I will be talking with to be a part of that program; people who want to sell or give knowledge rather than product hype.

**"What else can I do?"** I asked. "I think the dealers need something tangible, in their hands, every month that makes their business run better, more profitably, from SPACE." I was working up to providing a newsletter.

I outlined my thought. CSD would create a dealer newsletter. It would go out in the middle of the month and it would deal with product trends, sales trends, legal problems and some technical hints and kinks. **"How would that differ from CSD?"** Rick asked.

It would be quicker, faster between lock up and receipt, and it would be **totally** slanted towards the dealer. There would not be product reviews or reports on terminal installations in Liberia. There would be some very-very insider information for dealers only.

**"Could we call it the SPACE Dealer Newsletter?"** Brown asked.

I said no. It would be self defeating if it was totally a SPACE newsletter. Part of the SPACE problem was that to many dealers SPACE looked like a 'club for insiders.' I wanted the newsletter to be

responsive to **every** dealer at **every** level. What I **would do** was see that all of the SPACE dealers received a copy, free of charge. I would donate the equivalent cost of a newsletter subscription to every SPACE dealer member. In effect, a fellow who joined SPACE as a dealer member, for all of the reasons one should join SPACE, would **also receive** at no extra cost the newsletter. That seemed like a fair way to do it to Brown.

The first issue of the **COOPER/JAMES REPORT** will go into the mails on Monday August 15th. The subscription price is \$35 per year. A distributor can buy bulk subscriptions for increments of ten dealers (10, 20, 30, etc.) for a reduced rate. I think a distributor would be wise to do this and we have a special plan where a distributor can ask us to enclose with **CJR** a copy of his own promotional material for that month just to his dealers, or, to all of the dealers nationwide. In effect, we'll help the distributors reach the dealers with their latest mid-month pricing schedules.

The sixteen page **CJR** will carry a limited amount of advertising. We have to accept **some** advertising since the cost of producing this and getting it into the first class (air) mails exceeds the \$35 per copy per year. This will become increasingly so if we end up with thousands of SPACE dealers ultimately and Larry James and I are donating (as in giving away free) to each of those dealers their very own copy at no charge.

For those who are trusting, there is a **CJR** subscription form on **page 61** here this month. For those who are not so trusting, we have a devious plan that allows you to acquire a **sample** of **CJR** for a nominal fee, using the same form. Oh yes; **CJR** is NOT available to anyone who is not legitimately in the distribution chain of TVRO products. We'll send you a sample just for filling out the form and enclosing a nominal fee. BUT, if you are going to subscribe you **MUST** attach either a letterhead or a business card to the order to show us that you are at least enough into this business to have a 'front' established. That business card or letterhead must clearly reveal that you manufacture, distribute or retail-sell TVRO products. I hate to be a stinker about this but Carol Graba has my instructions that any who attempt to subscribe without 'qualifying' are to get their money back. What



## ANTENNA POSITIONER

Expanded line features position sensing capability:

- NEW Ten-Turn Potentiometer or Hall effect sensors
- NEW 36 VDC motor, as well as 12 & 90 VDC and 110 VAC units
- FULL 4, 8, 12, 18, 24 and 36 inch strokes standard

Field proven by hundreds of weather proof installations, Saginaw Steering Gear Performance Pak Linear Actuators have earned a reputation for rugged, reliable performance. That's why they have been chosen by several major manufacturers of satellite antenna systems.

Trust the positioning of your antenna to the actuator with the widest proven performance.

**Saginaw Steering Gear**

**Hi Tec 904**

Actuator Products, Saginaw Steering Gear Div., GMC, 3900 E. Holland Rd, Saginaw, MI 48605 (517) 776-4123

appears in **CJR** is to be treated as 'Confidential Material' and it certainly is not intended for eyes outside of our industry.

#### REACTION To Reliability Studies

After the June issue of **CSD** appeared, complete with a very long report on just how good (or bad) our equipment really is in this industry today, I anticipated getting a few threatening telephone calls. I was not disappointed. I also received a number of unsigned poison pen letters. Again, I was not disappointed. Not everyone wants to spend \$30 for an overseas telephone call just to tell me something about my ancestors.

Several of those who didn't take that approach had some interesting observations. **Joe Valentino** sent me a night wire asking that I extend to the industry his concerns that he had caused anyone any grief, and including a pledge that he would do better under his new **JV Satellite** banner. Several firms that did well in the study called to ask if they could reprint the results of the survey or lift out the relevant lines to use in trade advertising. I told them that the facts were there in print for anyone to see and if they happened to like the way they came out, they were free to use the results in their own advertising. What the heck; if you come out looking good, you would like to make some noise and blow your own horn.

Only one reader expressed concern that the results as printed were inaccurate. I don't know where this guy got his experience but he commented "**Too bad a better statistical population was not available for the CSD June '83 survey. I feel the results often misleading. Perhaps this survey** (appearing in the June 83 issue as a new survey form) **will spark better and more precise reporting by dealers and distributors in the future.**" Actually, we had only minimal problems with the statistical accuracy or the 'population' represented in the June report. Yes, there were many-many products that made it into the listings, but for which there was inadequate data to create a meaningful statistical analysis. We have to remember, however, that there are receivers and drives and antennas and so on out there which are sold in very limited quantities. It takes a firm that cranks out 500 to 1,000, or more, products of a specific type per month to make any kind of measureable 'market force' dent in our industry

these days. A fellow turning out 100 antennas, no matter how profitable he may be or how good his products may be, cannot expect to end up in the big time when the balance of the industry is turning out 20,000 per month. 100 as a percentage of 20,000 is simply not a very big number (.005%).

Readers may recall that the **ADEC** drives did badly in the survey. Terrible would be a kind word. **ADEC's Jim Rothbarth** talked with us about that product. "**Boy, was that a dandy product!**" exclaimed Rothbarth. "We sold \$1.3 million of the drives. And our books showed we had a gross profit of \$364,000. I liked those kind of numbers. But then our net profit turned out to be -\$81,000! Yeh, we lost \$81,000 in money on a product that sold 1.3 million and grossed nearly 400,000. How could that happen? Simple. We got every unit back for repair so many times that we ended up rebuilding them over and over again. What a loser!"

There's a strong message there of course. When a product gets into mass production and mass distribution, it had better be market-ready. It had better be capable of doing what it is supposed to do, everytime, or everyone concerned with the product through the entire chain (OEM/distributor/dealer) is going to suffer. In this case Rothbarth made an uncommon effort to see that his products did ultimately work for the users. I'm sure there are still some out there that raise the hackles on the back of dealers when they hear the phrase **ADEC**. I hope others who think they have the world's greatest product ready to go will keep in mind that it is not that difficult to lose \$80,000 plus dollars with a gross sales of \$1,300,000 when the product itself was capable of a 28 percent return (\$364,000 gross profit against \$1,300,000 in sales). Better the product be totally de-bugged before you start shipping, and using it; right?

#### ARTICLE Of The Year

The June issue of **CSD** carried a listing of those articles written by readers during the period May 1982 through May of 1983 and asked readers to 'vote' for the article/author who did the best job during the

COOP/ continues page 82

In any application, insist on an Odom Antenna... It's

# SOME DISH



Let's face it. We are in a high technology industry. And nothing spoils high technology like low quality. Odom Antennas has manufactured quality fiberglass antennas for years and has established themselves as a leader in the industry.

Odom antennas feature the unique zinc flame spray reflective surface and each individual manufacturing process is inspected for quality control.

Odom offers a wide variety of residential and commercial antennas, ranging from the 6 1/2-foot dish all the way up to the 20-footer.

(Dealer and distributor inquiries invited.)



**Odom  
Antennas, Inc.**

P.O. Box 517  
First State Bank Building, Suite 202  
Beebe, AR 72012  
(501) 882-6485 / 1-800-643-2950

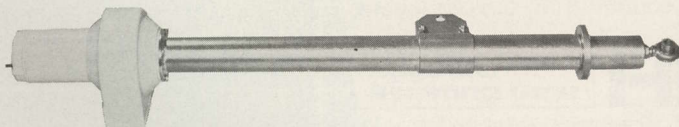
# It was only natural...



... that Superwinch, innovator in electric winch technology since 1968 and the manufacturer of more electric winches than anyone else in the world, should introduce Skywalker,<sup>TM</sup> an exciting new breakthrough in TVRO antenna actuator drive systems.

Superwinch standards always have been high ... in product design, product reliability and support, and in commitment to product availability. Their standards are reflected by the customer company they keep - Sears & Roebuck, J. C. Penney, Montgomery Ward, Western Auto, Canadian Tire, W. W. Grainger ... the list goes on. Over 525,000 products bearing our name are in service world-wide.

Superwinch offers this same high quality standard in the Skywalker remote TVRO dish control system.



by Superwinch

For further information, please fill out and mail coupon to:

Superwinch, Inc., Putnam, CT 06260  
USA or call (203) 928-7787.  
Telex 643981 SWINCH PUTM

Please send me more information on your Skywalker<sup>TM</sup> system.

Name: \_\_\_\_\_

Street: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_

Zip Code: \_\_\_\_\_

# TOTAL CONTROL

AT THE TOUCH  
OF A BUTTON

## RM-2 Wireless Remote Control



DIGITAL  
CHANNEL  
READOUT

AUTOMATIC  
POLARIZATION  
FOR CHANNEL  
SELECTED

AUDIO  
SUBCARRIER  
INDICATOR

POLARIZATION  
FORMAT  
INDICATOR  
(SATCOM/WESTAR)

3 DIGIT  
ANTENNA  
POSITION  
INDICATOR

DIRECT  
CHANNEL  
ENTRY

AUTOMATIC  
POLARIZATION  
FOR CHANNEL  
SELECTED

FINE  
TUNE

UP/DOWN  
CHANNEL  
SEARCH

ANTENNA  
POSITION  
CONTROL

AUDIO  
SUBCARRIER  
CONTROL

POLARIZATION  
REVERSE  
(SATCOM/WESTAR)

The Via-Sat RM-2 wireless remote control is designed to interface with almost any receiver on the market remotely. In addition to its modern design and attractive styling, the RM-2 features remote antenna position control and allows the TVRO user to rapidly scan, select, and fine tune all 24 receiver channels without leaving his chair. When used in conjunction with the Chaparral POLAROTOP I, the RM-2 automatically selects antenna polarization and even includes "Reverse Format" for WESTAR viewing.

Detailed instruction manual for receiver interface included.

American Technology  
At Its Best

# VIA-SAT COMMUNICATIONS

5201 Bridge St. Fort Worth, Texas 76013

(817) 451-6601

## COOP/ continued from page 79

year.

There is more than an 'ego thing' at work here. **CSD** accepts articles for publication from outside sources and offers to award the best author of the year with an all expense paid trip for two people to Provo (from Fort Lauderdale) for a long weekend of their choice. The winner and a friend/companion/relative will be treated to a stay at the **Island Princess Hotel**, get a tour of the various WIV facilities, and generally have a neat vacation trip out of the deal. This is an annual contest and anyone who cares to submit an article is also qualifying for the next year's round of voting.

We had seven contributing authors during the first year. The race was not terribly close. The winner is ('the envelope . . . please') **Will Jensby** (1460 Lewiston Drive, Sunnyvale, Ca. 94087). Jensby wrote an article appearing in our March '83 issue titled "**Reviewing Basics Of TVRO Antenna Efficiency.**" In that article Will dealt with how various antenna shapes, focal length to diameter and feed systems have evolved, and where the laws of 'physics' are being gently 'bent' by many of those who would make claims about antenna efficiencies (i.e. gain) which are a little difficult to substantiate in 'the literature.'

Jensby was one of the founders of **Hastings Antenna Company** in Nebraska and most recently had returned to the high tech world of satellite communication system designing. Will is presently employed by **Philco-Ford Aerospace** in California and he has a most interesting work-related assignment in the Intelsat area of P-F.

We look forward to having Will here on Provo with us as our guest, and encourage others who have something to say on their minds to get it off, and in the process, qualify for the 1984 'contest' which will see another annual winner down here on Provo for an all expense paid visit.

## OFF To Sri Lanka

On November 17th, from San Francisco, approximately 25 satellite industry people (many with family members along) will depart the USA for an around-the-world trip to San Francisco. That's no mis-

print. You can hardly go around the world unless you end up where you started! Between SF and SF the group will stop over in Tokyo (four days), Hong Kong (one day), Madras and Bombay in India (a day), Colombo, Sri Lanka (6 days), and London (3 days) before returning to the states on the east coast. Pan-American is the primary carrier and the object of all of this expense is to take to **Arthur C. Clarke** at least three TVRO terminals and install them in Sri Lanka for Clarke and the national University.

For those new in this business, space, science fiction, and scholarly writer Arthur C. Clarke is the true father of the satellite system. Clarke conceived the satellite system we use and enjoy, today, back in 1945. He published his concept for a geostationary satellite system in the English publication **WIRELESS WORLD** in that year, and he saw on paper the **exact** system we now use some 38 years later. Clarke is also the most respected Science-Fiction writer in the world today and many of his novels have been turned into world-class movies. His latest novel, **Space Odyssey: 2010**, is currently getting the movie treatment by a movie maker named Spielberg.

The group will be the official entourage of the home TVRO industry in the United States, and the world, to Clarke. We will install one home TVRO for Clarke, at his house, so that he may finally partake of the satellite revolution which he conceived. We will also install a pair of terminals for the national university of **Sri Lanka**. These are going to become a permanent part of the "Sri Lanka Centre For Modern Technologies." The University is aptly calling this facility the '**Arthur C. Clarke Centre.**'

Clarke has donated much of his own money and plenty of his own time to help his adopted country (Sri Lanka) create a modern communications based university center (or, centre). It has been my dream for many years that the industry his vision made possible repay a small part of the debt we owe this man by taking to him modern examples of just how far his technology and mind has carried us all.

And, while the trip will not include everyone in our industry, those who are going (each is paying his or her own way) will represent the thanks and admiration we all carry for this man and his work. During the course of our visit to Sri Lanka, everyone will have the opportunity

## FINALLY, A QUALITY ALUMINUM DISH

### \*\*Cimco 12 Foot Aluminum Mesh Antenna

- 4 Foot Spun Center Section
- Mesh Panel Sections are Jig Welded and Installed at the Factory for Absolute Accuracy
- All Panels are Completely Interchangeable
- Stainless Steel Hardware

### \*\*Cimco X Mount

- Steel Polar Mount for Cimco or Prodelin Antennas
- Antenna to Mount Connection on Heavy Duty Bearings (3-8 Degree Adjustable Declination)
- Craftsmanship You Will Be Proud To Sell

### \*\*Complete System Prices With:

- Cimco/Prodelin/KLM/Drake
- Luxor/Dexcel/ADEC/MTI



# The Satellite Man

5903 E. PIMA • TUCSON, ARIZONA 85712 • (602) 721-2485

to meet with Clarke and enjoy his own enthusiasm as we install and make operate the three terminals. I think I can promise a front cover on the January issue of **CSD** which will show Clarke's excitement when he sees modern 4 GHz satellite television reception for the first time in his home.



**THREE STORY electrical engineering building where a 20 by 40 foot area will hold a pair of 20 foot terminals for use by the University; compliments of the American TVRO industry!**

For the record, Clarke had satellite reception in 1976. You may recall that the Indian government borrowed an early American ATS series satellite and positioned it over the equator so that it could serve the sub-continent. Then the Indians used that satellite to test the feasibility of 2.6 GHz "DBS" with the special capacity that the ATS bird had on board. During that testing period (which led to the present Indian owned bird family which operates at 4 GHz) Clarke had the assistance of some Indians in installing a 15 foot dish (screen mesh, as the photos show) on the second floor balcony of his Colombo home. It was, incidentally, with that same 'SITE' test that an Englishman in the UK named **Steve Birkill** first proved that he too could receive 'fringe area' transmissions from a satellite. So the 1976 Indian SITE tests did several things for our industry; it gave Clarke in-home proof that his 1945 vision was a practical communications tool, and, it provided a 'tool' for an English experimenter named Birkill to create the first private, at-home, low-cost TVRO. That all of this took place at a slightly lower spot in the spectrum (2.6 rather than 4.0 GHz) is not important.

The Indian SITE terminal at Clarke's home was not really designed for 4 GHz service; the mesh was going to be marginal at the higher frequency and the surface accuracy was also not adequate. And, the electronics Clarke had on loan through the Indian government was not designed for the 4 GHz band. None of this really mattered since the Indian tests using the ATS bird were relatively short lived anyhow, and shortly thereafter a tropical storm ripped through Sri Lanka and carried the 15 foot dish off of the balcony and crashing into the yard below.

**The present plan calls for the installation of a new Paraclype 14 foot size antenna**, with appropriate Intelsat grade electronics, on the very same balcony where the 15 foot SITE antenna was some 7 years ago. We need the height of the balcony to clear the heavy tropical growth. Clarke is so close to the equator (7.5 degrees north) that we will be looking mostly straight up. However, he is positioned so that perhaps we can scrape by with some visibility of the more eastern Atlantic series birds around 10 degrees east as well as those over the

## SBI CONSULTANTS

**TERRESTRIAL INTERFERENCE ?  
HELP IS HERE!** \* 4ghz maps (color)  
\* frequency coordination \* consultations  
\* teleconferencing site studies for 4 & 6 ghz  
\* MA BELL & AT&T licenses-by site-  
for your problem areas, (includes path dist.,  
length, azimuth, polarization & frequency.)  
\* filter recommendations Write or call to :

**P.O. BOX 763 tel 503-682-3264  
WILSONVILLE, ORE 97070**

## SALES AID VIDEOTAPE

### 'SATELLITE TELEVISION BASICS'

Show this 12 min. videotape in your showroom to answer your customers' basic questions about:

- \* What programming is on the sats.
- \* Which satellites are viewable
- \* How satellite reception works
- \* What equipment they will need

This professional, informative, and entertaining production is entirely generic and mentions no specific brand names.

**WILL PROMOTE SALES AND SAVE YOUR  
SALESMEN MUCH VALUABLE TIME.**

**\$79.50 in VHS & Beta**

Quantity pricing  
available



**SHELBURNE FILMS**  
54545 S.R. 681  
Reedsville, Ohio 45772  
(614) 378-6297

## QUALITY FIBERGLASS ANTENNA TOOLING FOR SALE

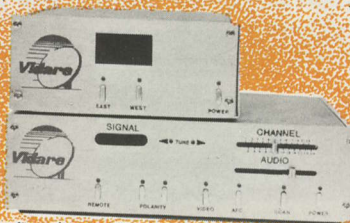
Satellite antenna molds, masters, and manufacturing jigs. High-tech metal-edged moldes make 10 ft. dish in 1, 2, or 4 piece configuration, f/d <sup>5</sup>.38 Includes tooling for cast aluminum feed assembly with high gloss FRP shroud. Also 2-pc. pattern for making 12 ft. dish molds, f/d <sup>5</sup>.40 All tooling built from scratch by renowned tooling company. Verifiable quality absolutely second to none. Growth in other product lines forces liquidation. Package price \$12,950 o.b.o. Some items may be purchased separately. Dishes available.

For further information contact  
**T. Swalm 816 474-4425.**

# VOYAGER VIII by Vidare

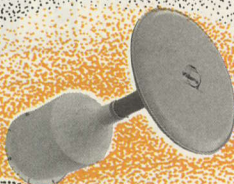
## VOYAGER VIII

The complete system for the viewer who wants big reception in a compact, attractive package.



## VID 8000

Vidare's new, exclusive, state of the art receiver. Features auto fine tune, signal strength meter, built-in 3-4 modulator, tuneable audio/video, scan tuning and burnished stainless steel front. Programmable positioner optional.



## BACKFIRE FEED SYSTEM

The strength of an 85°-90° LNA in an eye-pleasing assembly for a cleaner, more attractive installation... includes electro-mechanical polarization and feedhorn combined into one unit.

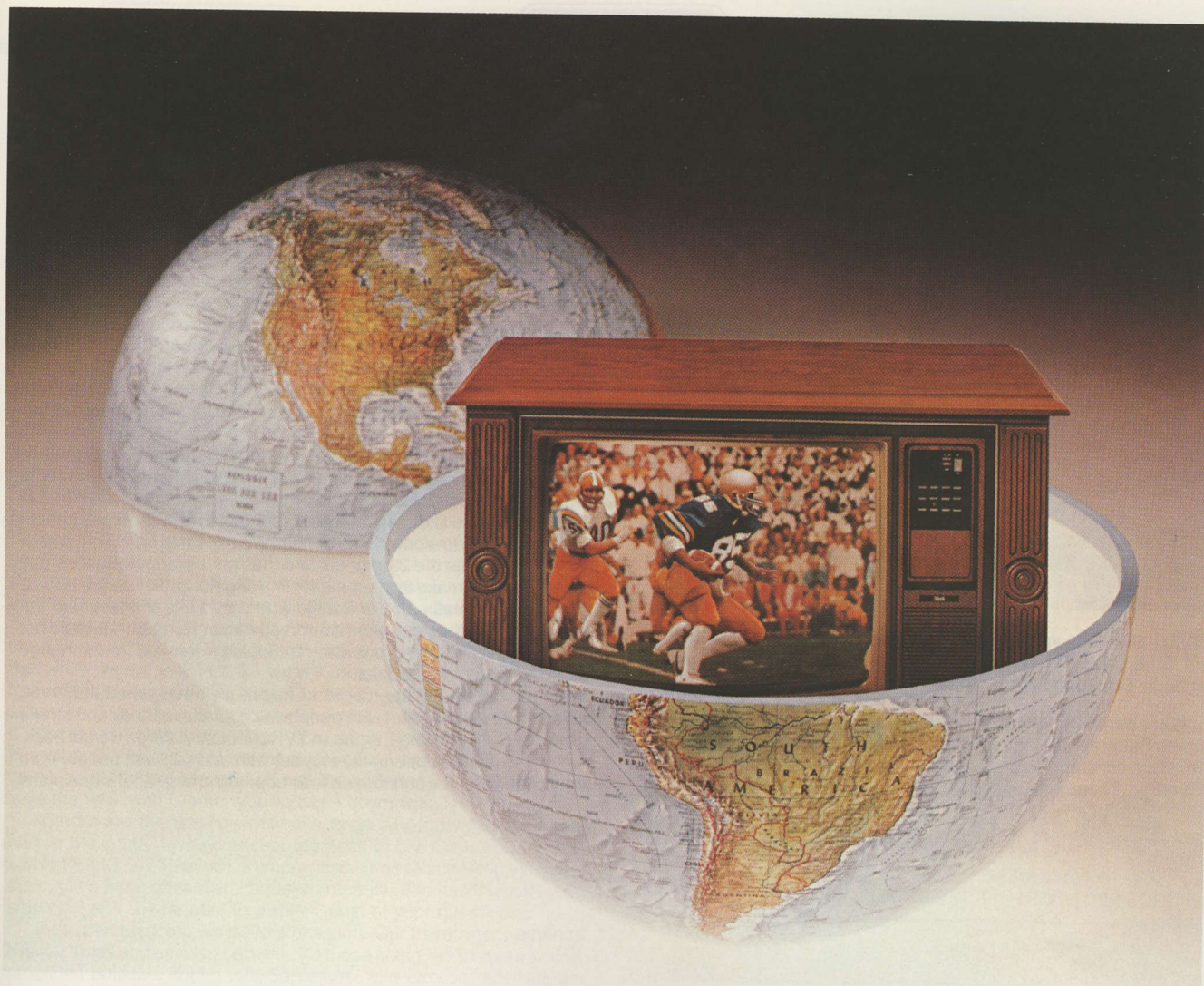


## POLAR MOUNT

VOYAGER's new 4" diameter, single-cylinder polar mount is rated to withstand winds well over 85 miles-per-hour.

**Vidare**

P.O. Box Q, Conway, AR 72032 • 501-327-0510 • 800-643-1137



## SYSTEM 7 OPENS IT UP.

### Lowrance helps open up the satellite market with an exciting new pair of satellite receivers.

The System 7<sup>XL</sup> is the new inexpensive Lowrance receiver with excellent performance and reliability. Features include detent tuning. Signal strength meter. Built-in modulator. 125 ft. of cable. Weatherproof downconverter. Fixed and variable audio. And more.

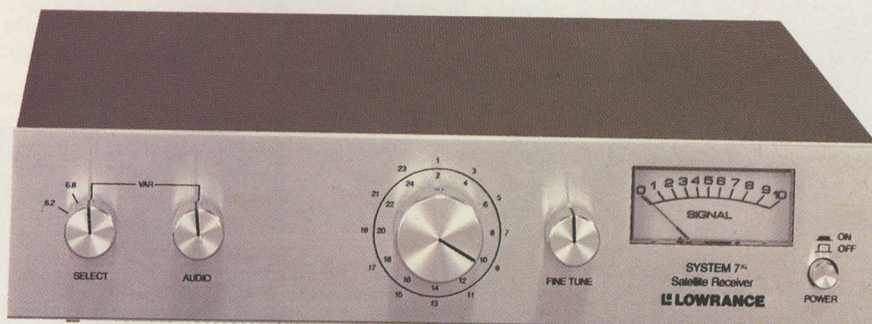
The System 7<sup>AR</sup> combines all the above, plus adds stereo decoding and a remote control as standard.

Lowrance also gives you the selling tools to keep the market open. With

dealer support that includes merchandising aids like color posters. Consumer TVRO question and answer brochures. Product brochures. Plus a video tape. All specifically designed to help you sell more earth stations.

When it comes to satellite receivers, demand the brand that helps increase sales . . . Lowrance.

**LOWRANCE ELECTRONICS, INC.**



Yes! I want to know more about the Lowrance System 7 Receiver. Send me more information today.

Name

Address

City  State  Zip

**LOWRANCE**

**LOWRANCE ELECTRONICS, INC.**  
12000 E. Skelly Dr., Tulsa, Okla. 74128

COOP/ continued from page 83

Indian Ocean. We'd love to leave him with the AFRTS news off of INTELSAT at 1 west!



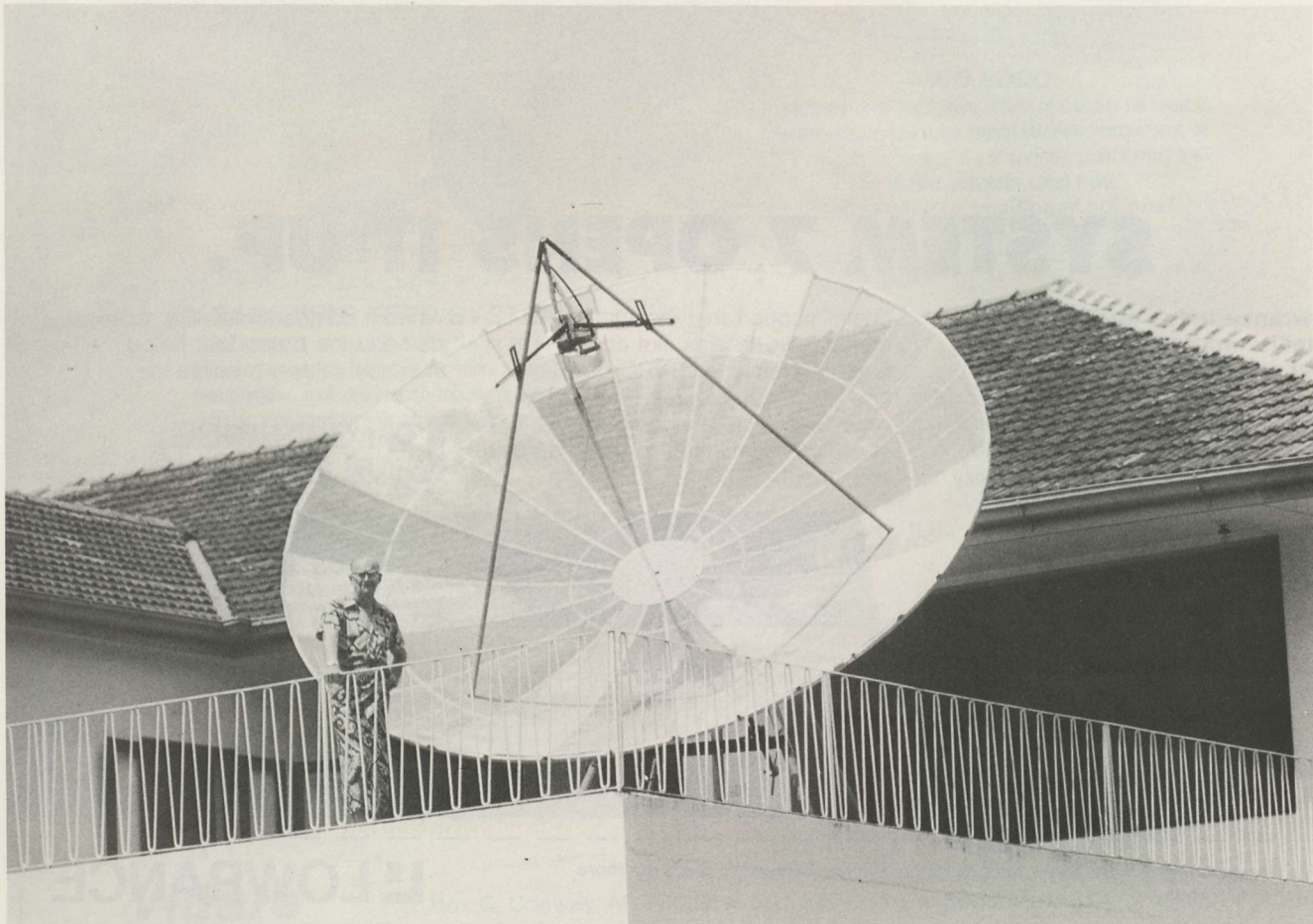
INDIAN and Sri Lankan volunteers work on assembling the 15 foot SITE DISH ON THE BALCONY OF Arthur C. Clarke's residence in Colombo; circa 1976.

While part of the group is busy installing the Paraclipse at Clarke's Barnes Place home, the remainder of us will be hard at it on the flat, third story, concrete top of the electrical engineering department at the University. There in a space 20 feet by 40 feet, we will be putting

together and up a pair of twenty foot dishes. One will be the horizon to horizon tracking **ADM 20** footer and the other will be the brand new **.3 f/D Hero** horizon to horizon system. These two terminals will give the new 'Arthur C. Clarke Centre' the tools they need to build for the university a much needed 'third world technology centre' for space and satellite communications. I feel that over the next decade this centre will turn out hundreds of engineers with specialized training in space communications; something desperately needed by the developing nations of the world. With Clarke's worldwide reputation, and the aid and assistance and backing of an entire world of communication firms, this project has the potential to become one of the stellar space communication learning centers outside of North America and Europe. Clarke has a way of seeing that his visions 'work' in the real world and this university is high on his list of priority projects at the moment.

In addition to our prolonged stay with Clarke and the people of Sri Lanka, we will also be meeting as a group with some of the leaders in Japan in 4 and 12 GHz technology. I have asked that any firms in Japan that would like to meet with us contact the **CSD** offices here in Fort Lauderdale to work out the details. We expect to be in Tokyo from November 18th to the 23rd or so; and then on to Hong Kong for a day and a night. We make the same offer in Hong Kong; if there are people throughout Australia, or the Pacific who would like to meet with the group, let's see if we can work it out in advance. Hong Kong would not be a bad spot to hold a one day 'technology seminar' to exchange ideas, concepts and problems.

On the far end of the trip, in **London**, we have scheduled three days so that we can meet with people such as Steve Birkill and others in the rapidly expanding European TVRO industry. When we get back, we'll have had the opportunity to meet with and talk with people from around the full world concerning their hopes and aspirations and plans



CLARKE, balcony, and 15 foot SITE terminal in 1976.

for both 4 and 12 GHz technology. Oh yes; we'll be in London around the 1st to the 3rd of December.

**Going with us?** Is there any room left?

Yes, and, no.

Plans for tour groups such as this must be made far in advance. After spending three months 'bartering' with about a dozen tour group operators, the airlines directly and many others, we have decided to book our group with Pan American. For less than \$2500 per person (children 11 and under are 2/3rds fare) a person can leave say Washington, D.C., fly to San Francisco, and all the way around the world including the side-leg excursion to Sri Lanka and back again to India returning to Washington, D.C. So the air fare part of it, while not cheap, is we feel quite reasonable. Others, leaving from places like Chicago or whatever, will also go 'around the world' with Pan Am, and the bargain fare includes bringing them back to the same place they began, as long as it is on Pan Am.

To that add the costs associated with food and lodging and ground touring and you will probably have around \$4500 per person budgeted. We will be gone very close to three weeks. Of those signed up, we have 20 that are 'firm' and six more than are '90% sure.' Between now and mid September we have to settle on a 100% firm list so that the airline and hotel bookings can work properly.

**Those going are a varied group.** Not all are Americans but all are directly related to the TVRO industry. Most of those going recognize that while we are in Sri Lanka we will be spending some time in the tropical winter sun installing antennas, running coax lines, and siting in antennas. That won't keep those who wish to go Scuba diving with Clarke or snorkeling in the Indian Ocean from doing so. Most readers know that Clarke is one of the most respected authorities in the world on Scuba diving and all that goes with the underseas world. When you 'dive the wall' with Clarke, you've been down with THE master.

If there are those who would like to go who **now feel** they can handle the costs, I would encourage each to call Carl Graba at the CSD office (305/771-0505) promptly. If you find telephoning inconvenient, get a letter off to Carol equally promptly. She has the schedule down pat and will be able to answer most of your questions.

Each person going will need a passport. Our travel agent is handling the Visas and other paperwork. To those going, we'll have a series of written bulletins during late September and October advising on special travel arrangements and accommodations.

Yes, this is THE opportunity of a lifetime. Not only will those going have the opportunity to meet with world leaders in the TVRO/satellite revolution, but the portion of the trip in Sri Lanka will be absolutely a one-time event. We may return to Sri Lanka in the future; but never again to be arriving as a group that presents Clarke and the nation with their first modern tools of the satellite communications revolution.

## ANOTHER Approach

If the SPACE efforts to keep the coals hot under the feet of the premium movie industry folks is sputtering and moving at an erratic speed, there is another approach currently being floated within the industry. It came out of a series of discussions inaugurated at the Can/Am '83 show and it is based upon the premise that a 'free marketplace' solution to the problem is more attractive to business people than a decision forced by protracted, and perhaps indecisive legal battles.

More than two years ago this publication made the suggestion that our industry might best cover our home terminal viewers by creating an industry wide corporation which operated its own premium movie and specials schedule. At the time that was suggested, there were so few people who were taking the scrambling threat seriously that the idea simply died from lack of interest. Like many sound concepts, this one died because of poor timing. Now it appears the timing is coming around and the concept of a free-marketplace, industry operated and industry supported premium movie service channel is worth looking at; seriously.

**Credit** for reviving interest in the concept has to go to David McClaskey of Intersat. McClaskey, like many others in the industry, has 'political problems' supporting a strictly legal solution (i.e. bringing suit against the present premium program suppliers) since there are no guarantees that the legal approach will pay off. **"We could lose the suit; and at that point we are a year or two down the road, and our adversaries have us in a very bad spot. We need to be working**

## Buy Factory Direct & Save!!!

### Coaxial Cable

RG-6/U (FOIL & BRAID)	\$ 65/M'
RG-8/U (95% BRAID-FOAM)	210/M'
RG-59/U (96% BRAID-POLY)	90/M'
RG-59/U (75% BRAID-FOAM)	65/M'
RG-59/U (FOIL & BRAID)	49/M'
RG-11/U (96% BRAID-POLY)	210/M*
RG-213/U (96% BRAID-POLY)	260/M*
RG-214/U (SILVER BRAIDS)	1350/M'
RG-214/U (T.C. BRAIDS)	450/M'
RG-217/U (96% BRAIDS-POLY)	600/M'

### Connectors Type 'N'

UG-21/BU (MALE) \$2.25	'N' CRIMP MALE	2.10/ea.
UG-21/DU (MALE)		2.00
UG-57/BU (DOUBLE MALE)		3.15
UG-29/BU (DOUBLE FEMALE)		3.15
UG-27/CU (ELBOW)		4.95
UG-23/BU (FEMALE)		3.15

### Adapters

F TO RCA-#907	.79/ea.
F TO BNC-#905	1.35/ea.
RCA CRIMP PLUG-59/U	.45/ea.

CALL FOR COMPLETE CATALOG  
CALL COLLECT (914) 947-1554-1555



# cZ labs

P.O. BOX 95-55 RAILROAD AVE.  
GARNERVILLE, NEW YORK 10923

## Satellite Earth Stations Distributors Of

### ANTENNAS

KLM - Wire Mesh with Memory Track  
Full Range of Fiberglass Antennas  
Complete TVRO Systems

### RECEIVERS

Dexcel, Luxor, KLM-IV, KLM-V

LNA's by Dexcel

### ACTUATORS

ADEC MTI Eclipse  
TWEAKER

- High Quality, Low Prices (call for quote)
- Full Service Department
- Dealer Inquiries Invited



"Distributing The Finest In Satellite Receiving Equipment"

P.O. Box 160 - Mamou, LA 70554  
La. Toll Free 1-800-252-3307 Out of State Toll Free 1-800-762-2110



## You're looking at what experience can mean to a M/A-COM Home Satellite dealer.

At M/A-COM experience counts. Three decades of research, testing and development are inherent in the quality of our newest components. We offer a wide selection of reflectors, LNAs, LNBs, LNCs, receivers, polarizers and coaxial cable to complete your Home System.

Look to M/A-COM as your total home TVRO source. Our experience shows in the marketing expertise and in the nationwide distributor network that backs our dealers.

Each M/A-COM component is fully tested and fully warranted delivering studio-like reception. Tailor the system to your market. A full line of M/A-COM components includes LNAs, LNBs, LNCs, top-of-the-line receivers with a full range of options, a complete selection of high efficiency compression-molded

fiberglass\* antennas, a wide range of coaxial cable, and polarizers for solid state electronic switching.

We offer the components you can sell with confidence backed by the reputation of M/A-COM—the company at the forefront in satellite technology.

For quality products and a dealership second to none call your nearest M/A-COM distributor listed on the adjoining page. We can show you the wave of the future.

\*Patent applied for

# M/A-COM

## Prodelin, Inc.

P.O. Box 100, Claremont NC 28610

## M/A-COM Prodelin Distributors for dealer sales and service.

### AV ELECTRONICS MARKETING

4301 North Star Blvd.  
Great Falls, MT 59401  
800-548-9950

### ECHOSPHERE CORP.

2250 South Raritan  
Englewood, CO 80110  
303-935-1909

### HIGH FRONTIER DISTRIBUTION

2230 East Indian School Rd.  
Phoenix, AZ 85016  
602-954-6008

### HIGH FRONTIER DISTRIBUTION NW

976 Industry Drive  
Seattle, WA 98188  
800-422-4011

### LEWIS ELECTRONICS, INC.

West Elm St.  
Humboldt, TN 38343  
901-784-2191

### NATIONAL MICROTECH

Hwy. 8, Granada Plaza  
Granada, MS 38901  
800-647-6144

### ROSS ELECTRONICS

900 Antelope Blvd.  
Red Bluff, CA 96080  
916-529-0200

### SATELLITE RECEIVERS, LTD.

1819 University Ave., Suite 206  
Green Bay, WI 54302  
414-432-6851

### SATELLITE SALES, INC.

688D Alpha Park  
Cleveland, OH 44143  
216-461-0000

### SATELLITE TELEVISION SYSTEMS

Rogers Plaza, 123 By-Pass  
Clemson, SC 29631  
803-654-5569

### SATELLITE VIDEO SERVICE

Star Route 247A  
Palenville, NY 12463  
518-678-9306

### STAR COMMUNICATIONS SATELLITE SYSTEMS

1009 Gregg St.  
Big Springs, TX 79720  
915-263-8300

### WARREN SUPPLY

300 East 50th St., North  
Sioux Falls, SD 57104  
605-336-1830

### WESPERCOM

63393 Nels Anderson Rd.  
Bend, OR 97708  
503-389-0996



**Prodelin, Inc.**

P.O. Box 100, Claremont NC 28610

COOP/ continued from page 87

on an alternate plan, one which **we** control, and one where the success or failure will depend upon our own abilities, not some unknown legal decision which itself depends upon the positions taken by the adversaries."

The primary interest in the 'alternate plan' approach revolves around directing industry resources in a **positive way** towards solving the problem. It has become apparent to all who care to understand what is happening that there is not and cannot be universal support for the SPACE legal attack on the problem. There are emotions, and political differences, which run very deep. This is a very competitive industry at the OEM level and the minute you attract certain members of the industry OEM group to support a program, you instantly alienate another group of OEMs. Not every OEM loves every other OEM. And nothing will change that.

So McClaskey and others have come up with the alternate plan; one which I feel should be thoroughly pursued. That plan simply says that if you, as an OEM or distributor, want to approach the scrambling situation as a **positive business opportunity**, you would have that choice. Here is how it is proposed to work.

- 1) The group accepts that premium service programmers have a legal right to protect their product as they see fit; including scrambling.
- 2) The group also accepts that anyone who scrambles has the right to determine who they wish to sell to, or not sell to.
- 3) But, the group feels that the people who have invested money in a home TVRO should have access to at least one premium service in their home.

Given that the legal solution to this problem may or may not be fruitful, the group is proposing that a more aggressive approach be taken. That approach calls for the industry to fund and operate its own premium service channel. And, fund a competitive effort within the industry's own ranks to create a scrambling/descrambling system of **our own** which receiver suppliers within the industry can retrofit to the receivers being sold to home TVRO owners.

Some numbers first.

If one studies the history of cable premium services, it becomes clear that you can afford the luxury of operating a 12 hour per day premium service channel with a 'subscriber base' of approximately 75,000 homes. To get into 24 hour service requires nearly 200,000 homes to make the system work. That assumes the homes are paying (through the cable firms) an average monthly fee in the \$4.50 range. Since we have to be concerned here with the amount of money it takes to select and program the programming, the retail price of the service (\$9.00 or so per cable home) does not enter the equation.

The most intelligent estimates of the size of our home TVRO industry at the present time (August of 1983) suggests that we have an **annual** shipping rate of between 180,000 and 200,000 terminal systems now going out the door. No, not all of those are being used by typical home viewers; no, not all of those are being used within the USA.

**Anyone with bucks** can enter the premium programming business. All it takes is subscribers. Lots of subscribers. McClaskey and group propose that a 'Limited Liability' corporation be formed. In fact, one is being formed as you read this. The majority of the total stock will be made available to industry participants; receiver OEMs, antenna OEMs, LNA OEMs, and others. The funding raised at this level will be used to do two things:

- 1) Create an industry wide competition to design and develop a 'home TVRO compatible' scrambling/descrambling system;
- 2) Fund an office with a small, compact staff to create a 24 hour per day service which is designed strictly for home TVRO viewers.

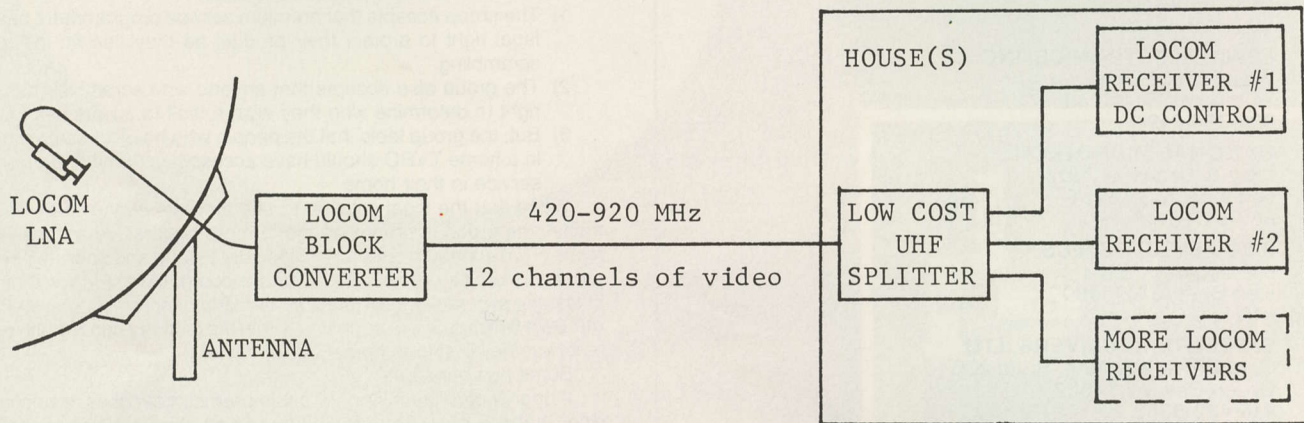
The idea details out like this. There are dozens of approaches to scrambling. Several existing approaches, in limited use, are possibly capable of being adapted to home TVRO use. Still other approaches are designed but not proven. Someplace out there we have the basis for a descrambler circuit and a scrambling system which lends itself to functioning with a home TVRO. There is mass production expertise in

COOP/ continues page 92

# LOCOM<sup>®</sup> - RSI

## BLOCK RECEIVER SYSTEM

In one house you can run multiple TV receivers with independent channel selection off one block converter.



The LNA amplifies the signal from the antenna and sends it into the block converter. Locom block converters differ from conventional converters in that they simultaneously convert all satellite channels to UHF frequency (420-920). Block converters offer the advantage of making it possible to run multiple TV receivers with independent channel selection off one block converter.

The output of the block converter is then sent via cable to the receiver. Depending upon the quality of the cable used, quality pictures can be achieved with varying amounts of cable. For example, by using RG 11 cable you could achieve a quality picture with as much as 350 feet of cable; with RG 59, 170 feet is a maximum run without line amplification. The receiver then processes the signal into video and audio and modulates it into an unused channel on the TV (channel 4, 5, or 6).

Additional receivers (and thus houses) may be added, each with independent, channel selection, by using low cost UHF TV splitters. An RG 11 cable run must be shortened by 50 feet for each receiver added; an RG 59 cable run must be shortened by 25 feet for each receiver added.

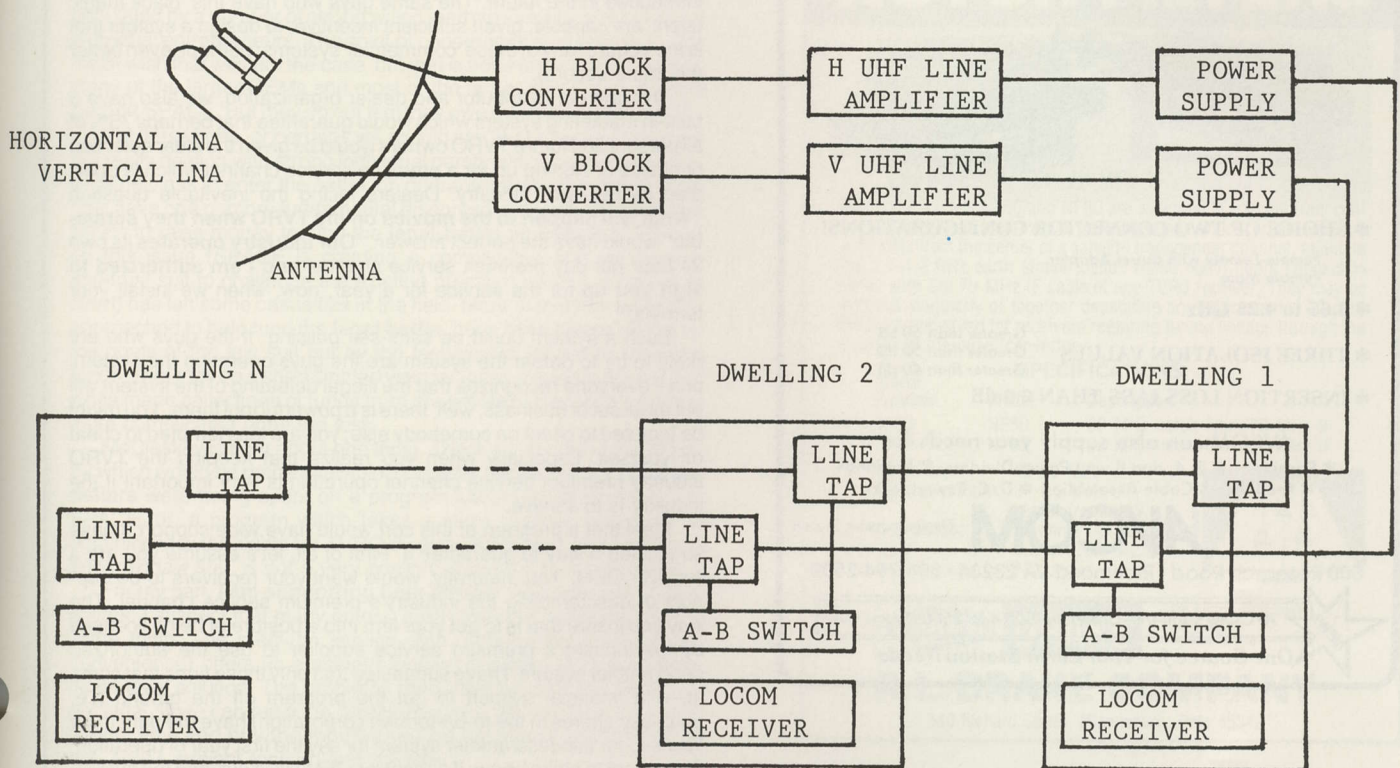
MANUFACTURERS OF  
**LOW NOISE  
AMPLIFIERS**

**RSI** Radio Semiconductor, Inc.  
315 Benner Pike, State College, PA 16801 U.S.A.  
Tel: (814) 238-2133 / TWX 510-670-3640 RADIOSEMI

# LOCOM® - RSI

## NEIGHBORHOOD SYSTEM

2 to 49 houses fed 12-24 channels from one antenna.



A major advantage of block conversion is that additional dwelling's can be added for just the cost of a receiver and cabling, and yet retain independent channel selection. In applying LOCOM block conversion in a large multiple unit system, a trunk line approach can be used. A single polarity system can deliver 12 channels to each dwelling. A dual polarization system, as shown above, can be accomplished by using two LNA's and two block converters. One LNA should be positioned for the horizontal polarity and one for the vertical polarity. Dual polarization allows each receiver independent channel selection of all 24 channels.

In a dual polarity system the signal travels from the block converter to the receivers via two parallel cables. It is recommended that a power supply be used to supply DC power to each block converter and LNA. A power supply is needed for each polarity so that the vertical channels do not enter the horizontal line and cause interference, and vice versa.

A UHF line amplifier should be used to raise the signal level so that it can be kept fairly constant as it is "tapped" off to each receiver. With the use of "line taps", multiple receivers can be tapped off of the two main cable runs.

Upon entering each house the two cables are fed into an A/B switch. This switch is usually placed adjacent to the receiver and is used to select between polarities, thus allowing each receiver independent channel selection of all 24 channels.

**for BLOCK RECEIVER SYSTEM Info**  
**CALL (800) 233-3028 (Outside PA)**

## FERRITE ISOLATORS

PROVEN **AVCOM**® QUALITY—THOUSANDS IN USE



**\* CHOICE OF TWO CONNECTOR CONFIGURATIONS!**

Female-Female with Barrel Adapter  
Female-Male

**\* 3.65 to 4.25 GHz**

**\* THREE ISOLATION VALUES**

Greater than 60 dB  
Greater than 50 dB  
Greater than 40 dB

**\* INSERTION LOSS LESS THAN 0.9 dB**

AVCOM can also supply your needs for

- \* Receivers \* 2, 4, and 8 way Power Dividers \* Antennas
- \* Feedlines & Cable Assemblies \* D. C. Powerblocks

# AVCOM

Dealer Inquiries Invited

500 Research Road • Richmond VA 23236 • 804-794-2500



AVCOM's Toll-free OrderLine 800-446-2500 (Orders Only)

One Source for Your Earth Station Needs

COOP/ continued from page 89

our industry which has never been applied to descrambler equipment. There is the ability in our industry to descramble **any scrambling technique yet introduced** and probably most of those that will be introduced in the future. The same guys who have this 'black magic talent' are capable, given sufficient incentive, to design a system that is the equal of any of these 'commercial' systems; perhaps even better (i.e. more secure).

Through our distributor and dealer organization, we also have a built-in marketing system which would guarantee that perhaps 75% of all present and future TVRO owners would be given the clear selection or choice of signing up for a premium service channel which is operated by our own industry. Dealers facing the inevitable question "What will happen to the movies on my TVRO when they scramble?" would have the perfect answer. "Our industry operates its own 24 hour per day premium service channel and I am authorized to sign you up for the service for a year, now, when we install your terminal".

Such a system could be semi-self policing. If the guys who are likely to try to defeat the system are the guys operating the system, and if everyone recognizes that the illegal defeating of the system will put us all out of business, well, there is a powerful tool there. You might be tempted to cheat on somebody else; you are less tempted to cheat on yourself. Especially when you realize that keeping the TVRO industry premium service channel operating is very important if the industry is to survive.

I feel that a program of this sort would have wide support. I have suggested a way to guarantee it. First of all, let's assume you are a receiver OEM. You, naturally, would want your receivers to be capable of descrambling the industry's premium service channel. The way you insure that is to get your firm into a posture of being licensed by the industry's premium service supplier to use the authorized descrambler system. I have suggested that only those firms that come up with financial support to get the program off the ground (i.e. purchase shares in the to-be-formed corporation) have the right to be licensed for the descrambler system for say the first year of operation. That ought to strike home; if a receiver OEM sits it out, and the system flies, he will be faced with watching his competition sell receivers that can be offered with the descrambler add-on circuit for a full year, while his receivers cannot be so configured. Nobody in their right mind wants to be faced with that possibility.

That takes care of the receiver folks. But how do you get the support of the LNA and antenna OEMs? Or, the distributors? I'd like to suggest that what we have here is tremendous profit potential. For anyone who buys into the corporation. Nobody needs to point out to me that HBO is a profitable operation. We, as an industry, have certain talents which would do a great deal to guarantee a profitable operation. First of all, we are all 'cheap'. We know more about running streamlined, stripped down businesses than anyone in the cable/home entertainment/satellite industry today. We've been lean and mean for four years. We have had to be to survive. Applying that same kind of business smarts to running a premium service channel will keep us profitable.

Next, we have a distribution system for the premium service channel which is virtually cost free. HBO pays big bucks to promote their service. The cable system pays big bucks to go door to door promoting the HBO service on cable. **We would market direct;** through our dealers. The dealers don't need to make a big cut from the sale of the service because they have a much better incentive; the availability of the service will make it possible for them to sell terminals. And that's where the real bucks are located.

Third, we have an industry that is growing at a fantastic rate. If we can add 10,000 new premium service subscribers per month, we are out there selling 10,000 (plus) new terminals each month. Let's assume that HBO got profitable because they were collecting \$4.50 per home from the cable firms each month. They were able to turn that \$4.50 per home into 24 hours of movies and specials. **And turn a profit.** Now suppose that we run a lean and mean machine. One that collects say \$5 per home per month (or \$60 per year) for 24 hours of premium service movies. If HBO with their huge overhead can make a profit at \$4.50 gross income per home per month, we can do everybit as good with \$5 per month even though we will initially have a far

## — ATTENTION —

# ALUMINUM MESH ANTENNA DEALERS

U.P. Satellite now offers a mesh antenna that is manufactured in the midwest. Call or write for a competitive price; beat the West Coast on freight. We offer a complete line of components including:

Amplica, Drake, Dexcel, Tel-Vi, Chaparral, KLM, and DB Engineering, etc. 24 hour delivery to most areas.

**U.P. Satellite Dish Co.**  
2715 Danforth Road  
Escanaba, MI. 49829  
(906) 789-1027

smaller subscriber base.

Now, what about the 'division of the ranks' issue; SPACE versus anyone else trying to resolve this issue? **That's a tough one.** In an ideal world, everyone in the industry would support our one and only trade association. This is not an ideal world and our industry is populated by a number of strong willed, perhaps slightly self-centered individual entrepreneurs. The spirit of cooperation is at best 'thin'. We might wish that was not the case, but that is none the less the way it is. Many of the larger OEMs and most of the larger distributors do now support SPACE. But they do not feel they owe **everything** to SPACE.

Yet these firms, or perhaps we should say 'these people' since we are really dealing with strong individual personalities here, feel somewhat helpless to enter the battle for 'guaranteed viewing rights' since they have one or more fundamental disagreements with SPACE. The efforts to raise money to fund the **legal-battle-approach** of SPACE on this issue (SPACE is creating a complicated and far ranging anti-trust suit to challenge the existing premium service suppliers in court) has left some casualties in the field. More than a few suppliers, approached to help fund the **legal battle**, have been turned off not by the goals of the law suit but by the techniques utilized to raise the funds. That may be a short sighted view for these suppliers to take, but it has made collections of funds from the **whole** of the OEM fraternity more complicated none the less.

McClaskey is right about one thing. There are dollars in the industry which would be made available to resolve this issue, if. If **if those dollars** were being spent on a program either not administered by SPACE, or, a program which takes a more 'positive approach' to obtaining viewing rights for TVRO owners. A law suit, a complicated anti-trust law suit, is not a very positive approach to the problem.

For my part, **I am supporting both efforts.** With time, efforts and dollars. I suspect that many others, given the opportunity, will do the same thing. The premium service plan (abbreviated PSP just for convenience) offers us a straight forward business type or market-place level solution. The problems presented by PSP are technical, not legal. **If** we can raise the dollars required, **we can buy** the transponder time and **buy the movies** needed to program the PSP channel. That's straight forward and do-able.

Designing a PSP scrambling system, and working out licensing arrangements with the receiver OEMs who would be authorized to offer PSP descramblers is also a straight forward business opportunity. Nothing unusual or complicated here.

About the time you are reading this, there is a scheduled meeting of those who have expressed an interest in being in on the ground floor of this program. Nobody is selling anything here; there is no super promoter involved and each participant would be involved equally with every other participant. And it does offer us a second, alternate, approach to getting our industry into a posture to be able to stand the slow and perhaps painful withdrawal period ahead as the existing premium service program channels go into the scrambled mode.

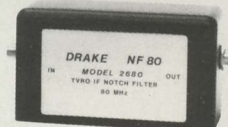
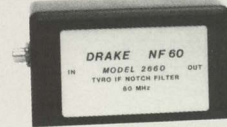
#### WHY 12 GHz?

As I headed back to Fort Lauderdale from Minneapolis's CAN/AM '83 show I found myself in good TVRO company at least as far as the Fort Lauderdale airport. That took me through Atlanta and a 50 minute layover as well. All along the way, there were people also heading home from CAN/AM '83 and it didn't take long for shop talk to take over.

One dealer from upstate New York wondered how he should handle the tremendous PR campaign we can all expect to burst forth over the next month or two as the first of the 12 GHz DBS services gets into gear. **"What is the best way to explain to people the difference between a DBS package and DBS subscription, and, 4 GHz?"** he wondered.

My advice is that if you are dealing in TVROs in a region of the US (virtually all of the northern states) where 12 GHz will be available to the public, you would be foolish not to get your own 12 GHz terminal installed at your shop. First of all, there is the thin possibility that one of these days the 12 GHz folks will awaken and discover there are 5,000 or so in-operation TVRO dealers in the USA already. When they figure this out, they'll quit screwing around trying to make deals with Monkey Wards or Sears or the local rural electric co-operative and let you bid

## TVRO Terrestrial Interference NOTCH FILTERS



#### For 70 MHz IF

The Drake models NF60 and NF80 are designed to trap out transcontinental telephone microwave transmissions, which create carriers  $\pm 10$  MHz from the center of a satellite transponder channel, falling in the 3.7-4.2 GHz earth station band. These notch filters connect in series with the 70 MHz IF cable of any TVRO receiver. They may be installed singularly or together depending on requirements. DC continuity is preserved for receivers requiring tuning voltage through the IF cable to the down-converter.

#### SPECIFICATIONS

Model Number	Model	Description
2660	NF60	60 MHz notch filter/70 MHz IF
2680	NF80	80 MHz notch filter/70 MHz IF

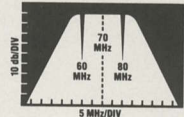
Notch depth: 45 db MIN

3 db bandwidth:  $\pm 1.5$  MHz of center frequency.

Impedance: 75 ohms IN/OUT

Size: 4.2" x 2.25" x 2.4"

Weight: 12 ounces



**DRAKE**

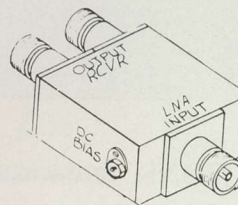
For further information,  
write or call:  
1-513-866-2421

**R. L. DRAKE COMPANY**

540 Richard Street, Miamisburg, Ohio 45342

**SGC**

INC.



#### FEATURING:

- HIGH-RATIO ISOLATORS  
60dB AT 3.7 TO 4.7 GHz
- CIRCULATORS
- POWER DIVIDERS
- D.C. INSERTION BLOCKS
- PADS
- TERMINATIONS

#### ALSO MULTI-FUNCTION DEVICES:

- ISO DIVIDERS
- ISO DIVIDERS WITH  
D.C. INSERTION BLOCKS
- POWER DIVIDERS WITH  
D.C. INSERTION BLOCKS

**SATELLITE GROUND COMPONENTS INC.**

1236 LOS ANGELES AVE. SUITE E

SIMI VALLEY, CA 93065

PHONE (805) 583-4818

# WHEN YOU ARE THE

# BUILD THE FIRSTSM



Hero System 25-H - 7.5 Meter  
Motorized Antenna

## ANTENNA SPECIFICATIONS:

ELECTRICAL:	3 METER	4 METER	5 METER	6 METER	7.56 METER
Operating Frequency	3.7 to 4.2 GHz	3.7 to 4.2 GHz	3.7 to 4.2 GHz	3.7 to 4.2 GHz	3.7 to 4.2 GHz
Antenna Gain at 4 GHz	40.4 db	42.8 db	44.5 db	46.5 db	48.4 db
Beam Width (-3 db)	1.75°	1.33°	1.°	.8°	.7°
First Side Lobe Exceeds FCC	32-25 Log 0	32.25 Log 0	32-25 Log 0	32-25 Log 0	32-25 Log 0
G/T at 20° Elevation (with 100°K LNA)	21.04 db	22.06 db	24.08 db	25.7 db	27.6 db
F/D Radio	0.30	.30	0.375	0.375	0.365

# RECKNOWLEDGED LEADER IN BIG, WORLD-CLASS TVRO'S...

What do you do for an encore???

## SMALL WORLD-CLASS TVRO ANTENNA!!!

**HERO COMMUNICATIONS** just took **BIG** out of world-class **TVRO** antennas. We have taken our four years of experience designing big, world-class antennas and established an entire new family of **small** world-class antennas. Using a totally new approach to antenna feed design, HERO is very proud to announce a 10 foot and a 13 foot in addition to our existing line of big antennas . . . **with 70% efficiency!!!!**

What this means to you, the dealer, is simply this. Now you can install a 10 foot system where only 13/14 foot system would previously play. Or, now you can install a 13 foot where only a 15/16 foot would previously perform. **This is no small accomplishment!!!**

This is such an important breakthrough that now, hard to serve areas such as the Caribbean can have superb performance on virtually all of the U.S. **DOMSAT** birds. As important as this may be to your fringe area installation business, there is more good news. The **PRICE**. Our 10 and 13 foot antenna with horizon to horizon motor drive and additional high quality features is priced less than any other low performance antenna of comparable size.

**Interested?** Of course, you are, because **Hero Communications** pioneered big world-class antennas and you know we have our act together. And now, Hero Communications pioneers **small** world-class antennas. Now, that's a hard act to follow!!!!



1783 West 32nd Place / Hialeah, Fla. 33012  
(305) 887-3203 / Telex 51-4712

## PROMAR

Paraclipse 9' Dish  
and Mount ..... \$770.  
(F.O.B. TAMPA)

Paraclipse 12' Dish  
and Mount ..... \$945.  
(F.O.B. TAMPA)

Full System Engineering,  
9' to 20' for Offshore  
Installations.

813/876-7677  
TELEX/52-825  
1-800-237-2903  
1-800-282-7713

PROMAR, INC.  
4912 W. LaSalle St.  
Tampa, FL 33607

COOP/ continued from page 93

on handling their installs and maintenance for them. After they go through the agony of trying to teach some rural electric lineman how to install a four foot dish on somebody's chimney, they'll get smart and talk to the people who are already doing such crazy things. If you have a 12 GHz terminal installed at your place of business, you can be a step ahead of the rural electric lineman or the Sears guy that spends two thirds of his life adjusting garbage compactors and straightening out washing machines.

**But, there is a better reason** to have a 12 GHz terminal at your shop. Let's suppose a fellow walks in and asks you to show off your 4 GHz stuff. He likes it but the price is higher than the 12 GHz package he has been hearing about. He is confused. He wonders why **your** stuff is so expensive. And why the 12 GHz stuff includes a monthly programming fee, and your stuff is a one time capital investment. And you try to explain it all to him.

Now suppose you had a 12 GHz package sitting there in your lot or on your roof. You simply switch it on and swing the receiver through the transponders. "Let's see . . . here's one. That is news. CNN news I believe. Remember? You saw that on my 'C Band' terminal a minute ago. Oh yes . . . here's a family channel. And here's a movie channel. And here's a sports channel. ESPN, just like the C band service. Here, I'll show you both at the same time. This monitor is ESPN on C band. This monitor is ESPN at 12 GHz. OK. That's it."

The guy marvels at the picture quality. "That's what?" he asks. "That's it. **That's all the channels there are.** Four of them" you respond.

"Four? How many did you show me on the more expensive system?"

"I didn't count them. Probably sixty. Maybe 70!"

Now let's suppose the prospect has heard that you can also get the Canadian DBS stuff at 12 GHz. And you are located where ANIK C reception is indeed possible. "Can we see that" he asks?

Well, that requires a different receiver. You see, the people who are building the DBS services have not gotten together to agree on what frequencies they will use, how they will transmit their signals and so on. Actually, if you want to receive two or more different DBS services, you will have to buy two or more different terminal packages."

So the guy wants to know how many channels he could get if he bought one 12 GHz package for each of the DBS birds.

"Today, this fall, 1983, there are two services available here in the Northern part of the US. One Canadian and one American. You might have nine channels in all, between the two. Of course the cost of the equipment for these **two** separate services will be just about the same as what **one** 'C Band' terminal costs. So it's 9 channels or so versus 60 or 70. That's what it is all about."

I think anyone out there moving a dozen or more terminals a month at the retail level should have a 12 GHz terminal installed. If you are north of the famous Mason-Dixon line, you can today see at least **something** from ANIK. The further north you go, the better the pictures get. You can also tune in the NBC feeds on SBS-3 (transponder 4) and before the fall is over there will be some other (DBS) programming up there as well.

**Scrambling?** Not yet. Even the Canadians have no immediate plans for scrambling their premium service feeds. There aren't enough 12 GHz terminals out there yet to make it dollar-practical for them to do this. You know how much grief they had at 4 GHz with scrambling the CANCOM feeds. They still have to turn off a scrambled channel or two when there is a 'medical emergency' in the north of Canada since the scrambling signals still screw up the emergency medical communications through ANIK-D.

Where do you turn for equipment? There are many sources, most of whom are probably going to be back logged on orders for quite some time. Better you get your order in early. Try **DX Antenna/C. Itoh** (270 Park Avenue, New York, NY 10017; 212/953-5218); or, **MACOM** (63 Third Avenue, Burlington, Ma. 01803; 617/272-3100); or, **United Satellite Systems** (Rt. 1, St. Hilaire, Mn. 56754; 612/645-0998).

Then let me know how you are making out. There has been so little real field work with the 12 GHz stuff that nobody really knows just how the footprints on the various 12 GHz birds fare, for example, out there in the 'fringe regions'. We all **may have** some real surprises in store!

VHF · UHF

**Tunable** **SATELLITE** **New Improved**

**VIDEO-AUDIO MODULATORS**

**Micro-Verter II series**

EXCELLENT NATIONWIDE DEALER PROGRAM!

- AVAILABLE CH. 2-13 plus LOW UHF.  
(Each unit tunable over 2-4 channels.)
- CRISP, HIGH FIDELITY COLOR
- NEW TEMPERATURE STABILIZED AUDIO  
SUBCARRIER CIRCUITRY.
- DUAL REGULATED POWER SUPPLY.
- ALSO IN PLUG-IN MODULE FORM  
(less power supply).

"Over 17 years of video modulator expertise"

SUG. LIST \$80.00

**ATV Research** Dial (402) 987-3771

13C—Broadway DAKOTA CITY, NE 68731

**You could spend more  
but you won't see a  
better picture . . .**



## **KLM's Sky Eye IV Satellite TV Receiver**

Superior design and engineering mean unsurpassed performance at a very reasonable price. Picture quality, electronics, ease of operation and installation compare with units costing much more. The **KLM Sky Eye IV** features slide-rule tuning, signal strength LED bar, "Center Tune" LED, AFC and video polarity control, fully tuneable audio (5.5-7.5 MHz), and remote downconverter. State-of-the-art single conversion/image reject circuitry, with SAW filter, produces sharp, clean, bright video that makes even big screen and projection TV look better than you've ever seen it before.

---

### **Complete UPS SHIPPABLE systems, too**

KLM's new high performance **X-11** antenna features slide-in screen panels and double-reinforced aluminum support ribs for high strength, low weight and windload. The matching **Polar-trak** mount delivers all the satellites, horizon to horizon. Motorized model with KLM's exclusive Tangential-Drive makes jackscrew designs obsolete. Switch satellites from inside the home with KLM's **Polar-trak** or **Memory-trak** remote consoles. X-11 antenna and Polar-trak mount can be assembled by two people in 2½ hours. Both are **shipped UPS!**

---

**MADE IN U.S.A./ONE YEAR WARRANTY.** KLM's receivers, antennas, and systems are built at its own manufacturing complex in Morgan Hill, California. KLM stands behind all its satellite TV components with a full 1 year warranty.

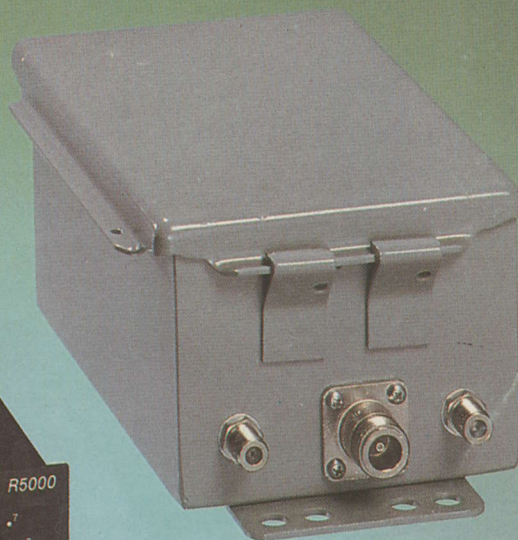
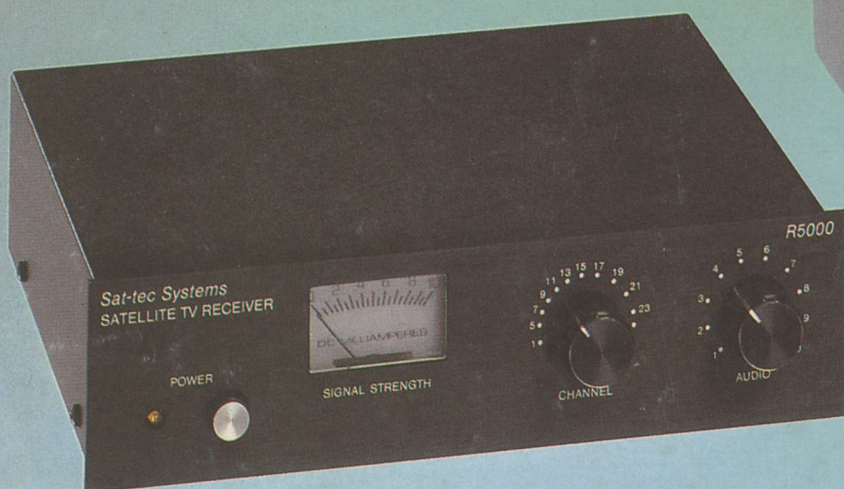
**KLM electronics, Inc.**  
P.O. Box 816,  
Morgan Hill, CA 95037  
(408) 779-7363



# Sat-tec . . . R-5000

*The Leader in Satellite TV*

*Contemporary styling,  
state-of-the-art performance,  
down to earth pricing*



Sat-tec's R-5000, a receiver designed for today's marketplace with tomorrow's features. Features customers demand, like; signal meter, contemporary styling, unexcelled picture quality, tunable audio, built-in modulator option, channel-lock AFC, baseband video output, rugged weatherproof downconverter, current limited "idiot-proof" hook-up, digital limiter/discriminator detector and reliable uni-chassis construction. Our years of accomplishments in the satellite TV industry has given us unique insight into reception techniques and customer demands. The R-5000 incorporates the latest technology as well as the subtle details that only experience can develop.

Extensive quality control checks such as our unique triple level board test, receiver burn-in as well as a final actual on-the-air check out assures reliability, for years to come.

The R-5000 — never has so much been experienced for so little. From Sat-tec, the name you've known first, since the beginning of Satellite TV.

Easy wiring is a Sat-tec exclusive, the down-converter can be up to 500 feet away from the receiver and only a pair of RG-59 cables are used — no troublesome multi-conductor wires or soldering! And, a real lifesaver are our current limited outputs, wrong hook-ups won't damage anything and there's not even a fuse to blow — it's the installer's dream!



**Sat-tec Sales Incorporated**

2575 Baird Rd., Penfield, NY 14526 • 716-586-3950

## STATUS OF STATISTICS

An analysis, as of the 10th of this month, of the current pricing and inventory status **trends** in the TVRO industry. Users of this data are warned that **CJR** 'samples' key OEMs and distributors on the 10th of each month to determine trends and averages. Dealers will find this data useful in planning their own purchasing schedules for the coming 30 day period.

### CURRENT PRICING/LNAs

For 100 degree LNAs, 50 dB gain, CWO terms, 3 lot purchase.

- 1) Lowest price reported:                      **\$275.00**
- 2) Highest price recorded:                      **\$360.00**
- 3) Average price recorded:                      **\$314.00**

### CURRENT SHIPMENT/LNAs

- 1) Greatest decline reported:                      **even (0) %**
- 2) Greatest increase reported:                      **+30 %**
- 3) Average 30 day change:                      **+10 %**

### CURRENT PRICING/ANTENNAS

- 1) Percentage reporting price declines                      **-10 %**
- 2) Percentage reporting price advances                      **none %**
- 3) Average 30 day change:                      **-1%**

### CURRENT SHIPMENTS/ANTENNAS

- 1) Greatest decline reported:                      **-15 %**
- 2) Greatest advance reported:                      **even (0) %**
- 3) Average 30 day change:                      **-1 %**

### CURRENT PRICING/RECEIVERS

- 1) Percentage reporting price declines:                      **20 %**
- 2) Percentage reporting price advances:                      **0 %**
- 3) Average 30 day change:                      **-2 %**

### CURRENT SHIPMENTS/RECEIVERS

- 1) Greatest decline reported:                      **-5 %**
- 2) Greatest advance reported:                      **+50 %**
- 3) Average 30 day change:                      **+14 %**

### EARLY WARNING (Next 30 days)

- 1) Equipment shortages predicted:                      **none**
- 2) Equipment surplus predicted:                      **none**
- 3) Biggest downward price move:                      **none**
- 4) Biggest upward price move:                      **none**

In surveying individual OEMs and distributors for the 'raw data' that goes into the above monthly summary, **CJR** pledges complete anonymity to its 'sources'. Dealers are asked **NOT** to contact **CJR** for information on 'lowest pricing' or 'greatest declines' referenced here; our pledge to sources is unbreakable! Many issues of **CJR** do, however, contain 'insert flier' sheets from OEMs and distributors announcing (as in advertising) current marketing specials.

**AUGUST 1983**

*-14 picas-*

STATS .....	page 1
KEEPING UP .....	page 2
MARKETING .....	page 3
INSIDER .....	page 6
SERVICE .....	page 8

*8 max*

## MID MONTH MEMO

*14 picas*

**GALAXY ONE** is on the air! There may be more to the announcement than meets your quick look at 134 west. HBO is seriously looking at using up to six transponders for a 4 GHz 'DBS' service to 6/7 foot dish antennas; as reported in some detail in forthcoming (September) issue of **CSD**. There's more good news; initial tests by Hughes tell us that actual on-ground signal levels at least in west coast area are from 1.5 to 2 dB **stronger than** Hughes had expected.

**12 GHz** terminals may be as scarce this fall as the programming that is supposed to be coming from 12 GHz early-programmers. But stand by for **next** fall; NEC has given written commitment to ship no fewer than 200,000 1.2 meter terminals into USA at \$581 price starting March of 84. Oh yes; they are also claiming 2.5 dB noise figure for their new package, a substantial improvement from other 3.5 dB offerings.

**Business slow?** Not to worry. Almost all distributors report o.k. shipments in July, but expect big upturn starting last week of this month. Too much heatwave and too many buyers dangling their feet in the pool! Fall TV viewing is just ahead.

*32 max*

**Cooper  
James  
Report**

**CJR/** (The) Cooper James Report is published and AIRmailed on the 15th of each month by **CJR Limited**, a Turks & Caicos Corporation with Corporate offices at Tower Plaza, Providenciales, Turks & Caicos Islands, BVI. All subscription requests, advertising requests should be directed to **CJR, P.O. Box 100858, Ft. Lauderdale, FL 33310** (call 305/771-0505 between 9AM and 4PM weekdays). An additional editorial office is maintained in Tulsa, Oklahoma (P.O. Box D, Claremore, Ok. 74017; telephone 918/342-1911) where Larry James may be reached. Subscription price is \$35 per year, AIRmail, within USA, Canada and Mexico; in US funds only. Elsewhere \$45 per year in US funds only. Sample copy available for \$5 in US funds. Material contained herein is considered **confidential** in nature and is for the study and use of TVRO dealers, distributors and OEMs only. Photocopying or extracting contents is prohibited without permission; copyright © by CJR Limited 1983/1984.

## NEW PRODUCTS/ SERVICES/ APPOINTMENTS

### ACCESSORIES

**ICM Video** (405/232-5808; P.O. Box 26330, Oklahoma City, Ok. 73126) announces automatic **video** (baseband) **processor** model VP-300C. Unit regenerates sync, blanking, color burst signals (replacing noisy signals with new reference signals) and has video AGC to maintain 1 volt peak to peak output. Also included is back porch clamping, copyguard stabilizer, 4 video and 4 audio outputs. Price is \$349.95 retail.

**ICM Video** announces model VE-200C **video enhancer**; a completely automatic video processing amplifier that regenerates sync and color burst signals, provides back porch clamp, color level set, video level set and burst phase control. Unit also provides delay-line video enhancement, noise reduction, copyguard stabilizer and 4 video/4 audio outputs. Price \$495 retail.

**Leaming Industries** (714/979-4511; 180 McCormick Av., Costa Mesa, Ca. 92626) announces model FMU 616 D '**Disney Channel Stereo Processor**'. Unit demodulates two subcarriers (5.8 and 6.8), combines them in a stereo multiplexer and adds stereo 19 kHz pilot carrier. The output signal is frequency translated to any FM channel in the 88-108 MHz band for carriage on SMATV systems. A similar package is available for '**The Nashville Network**' and two or more stereo packages are rack mountable in their PMS-600 high density mainframe.

### ANTENNAS

**Pico Satellites** (315-451-7700; 103 Commerce Blvd., Liverpool, NY 13088) announces model SAR-14, a **4.2 meter** satellite antenna with claimed efficiency of 68%, 3 dB beam width 1.27° and first sidelobes -20dBi. Polar over azimuth and tripod polar mounts offered; range testing patterns available (contact Jim Milne).

**Regency Electronics** (317-545-4281, 7707 Records St., Indianapolis, In. 46226) announces model SA 9000 antenna; **90" diameter**,

.090 marine grade hard alloy spun aluminum. Includes button-hook feed support, Polarotor feed and pole mount. Price is \$595 (retail). Contact Marc Diebold.

### LNAs

**California Amplifier** (805/499-8535; 3481 Old Conejo Rd., A3, Newbury Park, Ca 91320) has announced a new line of 'low cost' 50/53 dB gain 120 degree LNAs. The new product is designed to be price competitive with lower gain 120 degree units now being offered in the marketplace and is an addition to the 70 through 100 degree units (plus isolated 2 and 4 way power dividers) in the line.

### Mounts

**Centauri Tower, Inc.** (605/332-3514; P.O. Box 855, Sioux Falls, SD 57101) offering a 'simplicity design' **polar mount** that arrives to dealer assembled as a guide to how the unit is supposed to look when installed. They do recommend that you dis-assemble it before installation because of weight. Design is unique to company.

### Receivers

**Earth Terminals** (513/489-6300; One Microwave Plaza, Cincinnati, Oh 45242) has added **tunable audio** to their satellite receiver. Unit is a factory retrofit, tunes 5.5 to 8.5 MHz, and may be added to 'black faced models' only. Retail price is \$100 for retrofit. Also available, special fixed-tuned audio subcarrier boards for specific audio channels between 5.5 and 8.5 MHz, as replacements for standard 6.2 and 6.8 (front panel selectable) audio subcarrier frequencies.

**ICM Video** (405/232-5808; P.O. Box 26330, Oklahoma City, Ok. 73126) announces new **commercial grade TVRO receiver**; model SR-4400-B. Unit is dual conversion, separate down converter, tunable audio, detent tuning, signal level meter, polarization driver and selector, 30 MHz IF bandwidth, PLL video detector, automatic frequency control, automatic gain control. Retail price is \$1065. Contact Mike Janko.

**Regency Electronics** (317/545-4281; 7707 Records St., Indianapolis, In. 46226) announces new **single conversion TVRO receiver**; model SR 3000. Unit has separate down converter, detent tuning with automatic frequency control, polarotor control, preset plus variable audio subcarrier tuning, signal strength and center-tuning meters and audio plus video 'fine tuning' controls. Retail price is \$549.94. Contact Marc Diebold.

**Satellite America** (601/227-1160; P.O. Box 552, Grenada, Ms. 38901) announces new model SA-2000 **TVRO receiver with infrared remote control**. Unit has LED transponder selection, full matrix or stereo audio. Contact Christy Fowler.

### SERVICES

**International Video Communications** (214/247-1006; Suite 105, 2081 Hutton Drive, Carrolltown, Tx. 75006) has been selected as the 'video arm' of the **World Satellite Network**. WSN hopes to link up churches worldwide through satellite inter-linking and will conduct a live satellite inter-connection of as many as 5,000 churches September 16-17-18 from Houston, Texas.

## AT DEADLINE: 11th Hour Reports

**NASDA**/ the Salt Lake City based satellite dealer's association, attempting to get off the ground since last spring, has called it quits. Group had planned a very ambitious program of insurance, sales aids, 24 consumer TVRO 'shows' per year and a host of products and services for dealers. Those who 'paid in' will get their money back according to NASDA spokesman.

**SHOW NEWS:** Sat-Expo San Jose (Oct. 9-11) called off; lack of support. **STTI Nashville** opened 40,000 square feet new exhibit space, promises 300 booths Labor Day weekend. **SPACE Las Vegas** still hanging fire. **STTI Las Vegas** claims 78% (+) booths pre-ordered. **NSCA Denver** (15-17) getting big dose of 12 GHz romancing from early DBS programmers. **PRICES:** CJR survey found virtually unanimous agreement; June and July dead-even months with level, steady dealer business. **Look for slow increases** in TVRO hardware prices through fall, however. **HARDWARE:** Splash plate feeds on way out, quickly. Prime focus .3 'in.'

### NOTICE TO READERS:

**CJR** is provided without charge to **Dealer Members of SPACE**, the national trade association for the home TVRO industry in the United States. **CJR** is published as a mid-month companion to **CSD** (Coop's Satellite Digest) and is available to all other dealers and distributors for a nominal annual subscription fee (see page one, here; bottom of page).

Original Equipment Manufacturers (OEMs) are encouraged to submit new product releases for inclusion here in **CJR** to both of the following **CJR** editorial offices: **Carol Graba**, CJR, P.O. Box 100858, Fort Lauderdale, Fl 33310, and **Larry James**, CJR, P.O. Box D, Claremore, Oklahoma 74017.

## MARKETING: UNIVERSITY- COLLEGE SYSTEMS

### ON The Ground Floor

One of the vast, undeveloped markets for TVROs is the University/College/Junior College system in America. If there ever was a marriage 'made in heaven', it is the combining of low-cost (home) TVRO type technology, and, the nation's learning centers. To date, however, only a handful of the nation's Centers Of Higher Education have discovered TVROs and what they can do for the campus program. We hope this will give you some insight into the type of market that exists here, and lead you to your local campus to talk with the people there.

If there is ultimately a 'father of campus TVROs' named, it will undoubtedly be a man named **Lee Lubbers**, a professional educator at **Creighton University** in Omaha, Nebraska (**Lee Lubbers, Creighton University, California at 24th St., Omaha, Nb. 68178; 402/280-4063**). Lee first became intrigued with satellite communications, and satellite television reception in particular, by stumbling across some articles written by Coop in the general press. Gambling some of the University's money, he ordered a set of Coop manuals from STTI and began to dig into the hardware problems. From there he was led to **CSD** and eventually to David Johnson or Paradigm Mfg. Co. Johnson arranged for some equipment for Creighton University and today the Creighton University TVRO system is one of the most unique and innovative in the world.

Appearing on **Sat Scene Magazine** in an interview taped at CAN-AM '83 in Minneapolis last June, Lee explained how the system worked. One antenna is dedicated to the Russian Molniya satellite. That's that strange satellite system that operates by swinging far to the north of the equator and turning in a loop high over Central Canada. Using this 'over-Hudson-Bay' transmission point, the Russian Molniya birds (there are four operating, spaced approximately 6 hours apart) **look back down over the top of the North Pole** into those sections of Russia (such as Siberia) which are too far north to have a decent look at the geo-stationary/Clarke orbit belt.

The Creighton system was created by the students, and instructors. A desk top computer has been programmed so that the 'path' or 'pattern' of the Molniya satellite is inside the computer's memory. This computer memory drives the dish using a combination mount; one that has both azimuth (left/right) and elevation (up and down) tracking drives. The computer knows where the bird will be in its 'loop-the-loop' flight path over northern Canada, and it tells the dish where to point, and when. In this way the dish is always bore sighted on the slow moving bird and the people who use the system's programs are free to concentrate on the program content and to simply forget about the fact that the bird is not geo-stationary in space (i.e. in one spot all of the time).

Creighton University has an MATV (master antenna television) distribution system that inter-connects the classroom facilities as well as many of the student dorms. Into this system are plugged several 'satellite channels'. Unlike the normal HBO/WTBS/ESPN program distribution format, however, this system specializes in carrying things like the Russian Molniya broadcasts; SPN's TeleFrance, Mexico City's XEW and other non-USA programming. Lubbers on why this makes sense.

"Television has always been a great entertainer. It has also been a mediocre teacher. On occasion, it is also a good informer. We are simply concentrating on the **informational aspect** of the television service. We have found tremendous interest from our language department. When they found out that they could have real-world French or Spanish or Italian or Russian television in their classrooms, the teachers developed an entire new thought process about teaching foreign languages. Until that time the teacher had been the primary source of the language being taught. The teacher may be good, but he or she is not perfect and other than cassette tapes that lack the immediacy of the real world, the students have been forced to learn a foreign language that comes only from the teacher's mouth."

Having access to the foreign language programming has, according to Lubbers, changed many of the attitudes of students. Foreign language studies have changed from dry, monologues, to real-world, live, events. Since the various foreign language telecasts are available not only through the campus MATV system in the classrooms, but also in the dorms, the students can take their language studies 'home with them' to the dorms. A typical homework assignment? "Watch the 'Good Morning Siberia' newscast on Molniya and be prepared to discuss, in Russian, the content of the newscast".

Lubbers has done more than simply pioneer the use of satellite services at Creighton (a co-ed school founded in 1878). Inspired by the reaction of his own University professionals, and the intense interest shown by the students, Lee Lubbers has become a one man, world-wide advocate of an international consortium of institutions of higher education using satellite communications on a regular basis.

First Lee put together a three day Conference, at Creighton, this past May 19-21. More than 50 (very) interested educators attended and paid a fee to Creighton. They came to learn about how Creighton has pioneered use of TVROs, and to see if they might get similar activities started at home.

Robert E. Thompson from the La Crosse facility of the University of Wisconsin: "... **The conference was a success beyond our wildest dreams.** (In my case) ... it seems possible that departmental funds might be found for hardware, which would bypass the 'grant proposal technique'. I have been encouraged (by university funding people) to request the money outright".

Lubbers and others who attended felt that the Creighton system really opened the eyes of those educators attending; they almost had to 'see' and 'touch' the working system to appreciate how many educational benefits were there. And in terms of university funding programs, the money required to install a modest 'starter' TVRO system might not be as big a problem as some had suspected. Most university campus areas now have at least a start on an MATV system, a point Lubbers feels was key to the widespread acceptance of the service at Creighton.

"**Had we been constrained to show off the various services** possible on a group of monitors in a classroom or two, the project may have died before it began. But because we had an operating MATV system, we were able to plug in on some new channels and instantly we had campus wide coverage. People on the staff who showed no interest in the project initially suddenly became intensely interested when they discovered the programming on their TV dial".

Successful in inspiring other educators (they promptly formed an association, known as SCOLA which stands for **Satellite COmmunications [for] LeArning Worldwide**), Lubbers then set his mind and volunteer staff busy surveying where the presently available satellite programming services on domestic satellites were missing some of the major 'language events' in the world. German jumped up and bit him. There was no regular German television available. Lubbers decided to find out why and this trail led him to Zweites Deutsches Fernsehen (ZDF for short), a major German television network. ZDF has now agreed to provide a one hour minimum videotape dub of ZDF programming to SCOLA each week, taken directly off of German television. That was obviously a start, but what do you do with the tape? Bicycle it around? That seemed very old fashioned to Lubbers.

"**Meeting with the German Consul in Chicago**, we began to explore how some of the major German companies might be 'sold' on paying the costs associated with taking the ZDF delivered tape and purchasing US domestic transponder time to uplink it through SAT-

COM or WESTAR for simultaneous use all over the USA". In case you haven't figured it out yet, **there are certain things educators can do which the normal person cannot do.**

Off and running with the start of some German television programming. Lubbers is now concentrating on other 'missing' languages. Scandinavian, Arabic, Japanese, Chinese head the list. And since the Russian Molniya satellite requires its own dedicated terminal (something many of the Universities may not opt to do, initially), Lubbers is exploring taking Molniya reception and recording it for later relay nationwide on a domestic satellite.

To help fund this, on a worldwide basis (Lubbers and his fellow educators see an eventual worldwide network of centers of learning, all inter-connected via satellite), and to get the whole project out of the nickle and dime funding league, Lubbers is putting the finishing touches on an application for an 'Annenberg Grant'. This is a very special dollar-grant program established years ago by the Annenberg Foundation, and the purpose of the grant is to help fund new and creative concepts in educational communications.

One of the areas quickly identified by Lubbers as an impediment to the natural growth of satellite communications technology, and its use for learning worldwide, is the **present** Intelsat system. Out of initial ignorance, the group approached Intelsat for quotes on delivering to the USA live German (etc.) television programming. The costs were 'astronomical'; far more than even an 'Annenberg Grant' could handle. This piqued Lubber's interest in **why** the Intelsat rates '**are what they are**', and more importantly, '**why they HAVE to be that way**'. Turning a group of inspired educators loose on Intelsat may ultimately be very productive for the whole of the satellite industry. Remember, '... there are certain things an educator can do which the normal person cannot do ...'.

Now, how does all of this interest **you** as a **TVRO dealer**? In many, many ways. Or at least it should.

First of all, **you have a product to sell** to the Universities, and colleges and Junior Colleges in the United States (plus Canada). But **you are not** an educator, and you need some help in learning the educator's interest area. If you can interest an educator, and demonstrate what you have to sell, you will sell him. You also need some 'insider information' relating to the ways that educators are able to get funding for 'pet projects'; it won't do much good to inspire your local university types if you leave them salivating, but too poor to respond. That's where another professional educator can help. And his name (no surprise here) is Lee Lubbers.

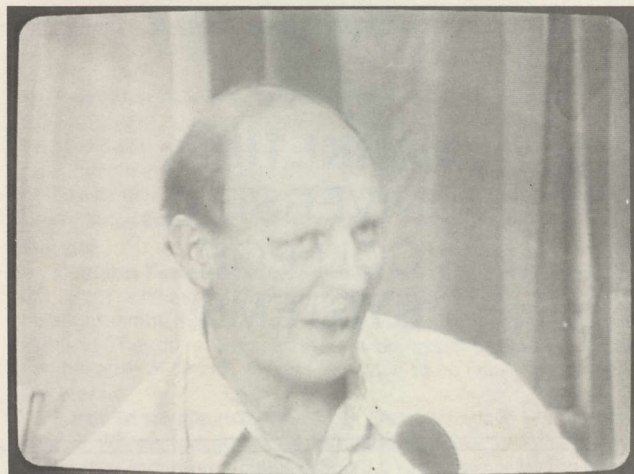
**Lubbers is very willing to help you** explain to your own college or university just what this type of system offers to them. Because he is at their level, they will accord him certain courtesies that you will not get until you earn their respect. Lubbers makes it very easy for you to call upon him for help; Creighton maintains a toll free 800 number (800-228-2700) which you can use to get yourself acquainted with this innovator in campus satellite systems.

So start by calling Lubbers and getting acquainted. He'll help you through the 'language' of educators, and he may even end up suggesting that you be prepared to 'donate' some of your time, services and perhaps even some equipment to get the project going. Don't be afraid of that one ... you will be amply rewarded down the road for helping your local educational center get started on this path.

Then, it just so happens that the next SCOLA Conference will not be held until May 21-25 in 1984. That gives you many months time to acquaint yourself with the local educators, to work back and forth with Lubbers in better understanding what SCOLA can do for the local university and college campuses, **and to prepare to attend** the May 84 conference in Omaha **along with** your local educators.

Remember that one of the key elements in making the system work for the campus is to have the satellite delivered services universally available in as many places as possible. Where they are not existing MATV systems, or where the systems were designed with different purposes in mind, you are looking at a contract for **not only** a couple of satellite dishes, but also for providing a complete and often extensive MATV system. If that scares you, **CJR** will be working with SCOLA to provide some excellent training in this area **before** you really need it.

There is one more, parting, aspect to the SCOLA initiative which



**LEE LUBBERS on Sat Scene Magazine, during August, talks with Coop about the SCOLA project.**

deserves some recognition. Each campus system is going to reach hundreds if indeed not thousands of impressionable, enthusiastic, students. These students will be exposed, for the first time in most cases, to the potential of having a TVRO. Many will take that message 'home', and if they benefit and enjoy the systems piped into their class rooms and dorms at school, they will be anxious to have a similar system at home. **Some** of their parents will be able to afford such a system, and **some of those** will be potential customers for you. Like many small acorns, from this project many-many large 'oak trees' can grow!

#### **CALENDAR/ Through October 1st**

**AUG 22/24:** SCUC'83 (Fifth Annual Satellite User's Conference), St. Louis. More than 250 exhibits, 3500 attendees predicted. Contact 303/694-1522. (\*\*\*\*)

**SEP. 5/7:** SIBCO'83 (Second Annual Conference), Nashville. More than 300 exhibits predicted. Contact 800-654-9276. (\*\*)

**SPE12/13:** DBS III: Third Annual Conference on Direct Broadcast Satellites, Washington, DC. No exhibits; lectures. Contact 301-989-0666. (\*\*\*)

**SEP 12/14:** CAST '83 (International Cable and Satellite Television Exhibition), Birmingham, England. Contact 01-487-4397 in London. (\*\*)

**SEP 15:** 'Buying Your Own Earth Station; Making The Right Decision' (one day conference (no exhibits) for those involved in installation and use of TVROs for semi commercial and commercial installations); Washington, DC Contact 202/331-1154. (\*\*\*)

**SEP 19/20:** Space Systems 2001 (symposium to assess Defense Department's future space system needs; also to be carried via satellite (bird not known) to Los Angeles and Dallas. Contact 202/638-7430. (\*\*\*)

#### **MOVES/Through October 1st**

Aug 15 (approx)/SIN and Galavision to move from F4 to G1.

#### **NEW BIRDS/ Through October 1st**

RCA F2R scheduled to begin tests at 72 west around September 10.

AT&T TeleStar 1 scheduled to begin tests at either 76W or 96W around September 15.

#### **Explanation of rating systems:**

- \* — Event not recommended.
- \*\* — Marginal event with one or more serious flaws.
- \*\*\* — Good event, recommended if topic matter is of interest to you.
- \*\*\*\* — Superior event, recommended if you have interest in any thing relating to satellites.

# EARTH STATION RECEIVER



## ESR224 RECEIVER

### FULL PERFORMANCE SATELLITE TV RECEPTION

- All 24 Satellite Channels • Attractive Styling
- Detent Channel Tuning • Normal/Inverted Video Switching
- Variable Audio Tuning for All Subcarriers
- Channel "Scan" Function • FCC Approved Modulator Available
- Polarotor™ Interface Standard • Optional RT224 Remote Control Available
- Matching Stereo Adaptor Available

\*Polarotor™ is a registered trademark of Chaparral Communications Inc.

Write for Brochure or See Your Dealer



R.L. Drake Company  
540 Richard St., Miamisburg, Ohio 45342, U.S.A.  
Phone: (513) 866-2421  
Telex: 288-017

PIONEER MEMBER OF  
**SPACE**

## INSIDER: ONE MANUFACTURER'S VIEW

### Introduction-

The TVRO dealer, functioning as the last 'link' in the distribution 'chain' makes the assumption that he and only he is on a fast learning curve; that others, such as the distributors or original equipment manufacturers (OEMs) are far ahead of him in detailed planning and careful study. That may not be the case.

Dealers are placed in a position of 'relying' on what they are told by the people they purchase from. They 'trust' the distributor or the manufacturer's sales rep to give them the data they need to make intelligent buying decisions. This month's 'Insider' look suggests that in some cases that 'trust' may be mis-placed.

Our attempt here is not to discredit any single manufacturer, nor any group of manufacturers. Rather, we simply want the dealer to learn that perhaps he should **question**, in depth, those from whom he purchases, more often. They may think they know the answers because someone has told them certain 'facts'. If you, the dealer, accept those statements as fact, and then make certain business plans based upon those 'facts', you could well regret such decisions at a later date.

The following is a transcription of a multi-way conversation held a few months back at an industry event. The entire conversation was videotaped, with the knowledge of the participants, but was later found too explosive for use on **Sat-Scene** magazine. By eliminating the names of those participating, and by eliminating the direct references to the company being discussed by the group, we hope you will concentrate on **what was said** and ignore who might have been saying it, or about whom they were talking.

### Setting The Scene-

There are two primary conversants in the group. One is a dealer operating in the Rocky Mountain States. He specializes in semi-pro installations for oil rigs and other remote sites. The second is a leading manufacturer of TVRO hardware; one of the fellows who builds TVRO receivers under contract for a wide variety of the 'marketing types' in the industry today. Others in and out of the conversation include an engineer to two.

**Dealer:** Why doesn't Company X build their own TVRO gear?

**OEM:** The 4 GHz stuff for them is nothing more than a stepping stone to establishing a marketing program for 12 GHz. They don't expect to make any money at 4 GHz and they don't even like 4 GHz!

**Dealer:** They don't seem to have the smartest people working with their 4 GHz systems . . .

**Engineer:** Don't kid yourself. They have an excellent line of hardware in many fields . . .

**Dealer:** OK, look at their antennas and . . .

**Engineer:** The antennas are made by (name of company); a well respected name in antennas.

**Dealer:** I was going to say . . . and their mounts. It is a very poor mount. If you had unlimited time and lots of guys to help, it wouldn't make any difference. But when you are on top of a mountain in Wyoming and the temperature is 40 below zero with the wind chill factor, that mount is a man killer. And I don't think **that** is very

smart! They are terribly dis-organized. Oh, have you seen this brochure describing their new consumer receiver (pulling brochure out of folder)?

**OEM:** Let me see that . . .

**Dealer:** Doesn't **your company** manufacture that receiver?

**OEM:** (glancing through four page brochure) . . . Yes, we do.

**Dealer:** Then maybe you can help me understand some of the statements in the brochure.

**OEM:** Well, just for openers, the receiver doesn't look like this picture.

How much are they charging for this receiver?

**Dealer:** The price is \$425 at the distributor level.

**OEM:** How did you **know** this was a receiver we are manufacturing?

**Dealer:** Word gets around . . .

**OEM:** Who told you?

**Dealer:** Can't remember. I know that (name of company) didn't tell me. I wanted to get some of the down converters to test; we need some multiple receiver packages for some jobs I am bidding.

**OEM:** Multiple receiver packages? You mean double conversion receivers?

**Dealer:** Yes . . .

**OEM:** They told you **this** was a double conversion receiver?

**Dealer:** Yes!

**OEM:** Well guess what; this is a **single conversion** receiver!

**Dealer:** But they told me it was double conversion. Look, here, in the brochure. See what they say? Double conversion.

**OEM:** I can't believe this. I have never seen this brochure before. They created all of these specs on their own. We haven't even given them **our** specs yet. **They made up all of this** just to print this brochure!

**Dealer:** So it is NOT double conversion?

**OEM:** No.

**Dealer:** I can't believe this; right here in the specifications, it says dual conversion. And that's what their sales rep told me. When I mentioned I was starting to do some multiple receiver installations, he said this was just the unit for me. He drew me a diagram of how I could stack these receivers **without isolators**; he called it a 'price breakthrough' in low-cost receivers; double conversion for the price of single conversion.

**OEM:** (Smiling) How would YOU like to work with these guys!

**Dealer:** Well, I've dealt with several different guys. You can tell by the answers they give to questions just how much they know; or don't know, as is usually the case.

**OEM:** I need to qualify my statements. This is a brand new product. Until **we** have it totally out of engineering and into its final production form, **we** are not about to give **them** a full set of specs. If we tell them too much too soon, they do something crazy like print up a four page brochure! That reduces our opportunity to do innovative design things right up to the end. When you tell them the unit will have a certain noise figure, or whatever, that kind of freezes that spec right there. And then we have to go back to them and wait for them to approve the change.

**Dealer:** So they didn't know it was **not** going to be double conversion?

**OEM:** Oh no, that was frozen from the start. It was **always** going to be single conversion receiver!

**Dealer:** OK, and then they call me up and get me all excited about this brand new unit and it sounds like everything I ever wanted at a tremendous price . . . ahh, does it have stereo in it? I hate to point it out, but here in the brochure . . .

**OEM:** It has stereo. That was frozen in from the beginning also.

**Dealer:** I was actually afraid to ask, after the double conversion . . .

**OEM:** Many of the changes are minimal, things that I would know because **we** designed the unit. Look at the photo here in the brochure . . . see that row of LEDs? They aren't in the unit. This center tune meter? Not there . . . these knobs they have on the front panel have just been glued on the panel. The guy who put this mock up together never talked with us; he just laid it out on a case and put the knobs and LEDs where he thought they looked good. Any resemblance to the real product is a coincidence.

**Dealer:** Good grief. It all looks so finished, so complete. This brochure had to cost them thousands of dollars. They even invited me to (name of city) to see a **working model** of the unit, a special

'advanced showing', last week.

**OEM:** They had it there. We gave them **one** pre-production, lab sample. They are hauling the only one they have all over the country showing it off in special, advanced showings. We are handing them over a second, 'real' receiver, today.

**Dealer:** Yeh; now they can do 'advanced showings' at **two** cities in the same day since they have two receivers to their inventory. Wow.

**OEM:** Look, these guys that you deal with, the guys I deal with . . . they are under intense corporate pressure. The guys that cranked out this brochure were undoubtedly pushed into getting a brochure out the door by people higher up. Everyone is in a big hurry, and they come to a firm like us and expect miracles overnight.

**Dealer:** When they first told me about the unit, before I got this brochure, they said I could have my first shipment two weeks ago today. I didn't order any of the first batch . . .

**OEM:** It is still going to be a while. They are in a very tough spot, one they made for themselves. They expect to have a new product designed for them, from the ground up, in just six weeks time. From original concept to first shipments of a finished product in six weeks. If you tell them that you will have a (brand new) artwork design and **possibly** the first (circuit) board in three to four weeks, they go back to corporate headquarters and interpret this to mean **three weeks**. Then on top of that, nobody at corporate understands what a board-artwork is. **They think** that is a complete pre-production receiver, built and de-bugged and aligned. Based upon this erroneous assumption, they start all sorts of marketing and promotional types moving with their own support products. A brochure like this is a perfect example of what happens because one person mis-interprets what he has been told.

**Dealer:** The problems are not just at the top. They have the whole nation divided up into sales office districts. Look here in the brochure . . . a whole set of different offices covering different parts of the country. You call these guys, **any** of these guys, in or out of

your district, on the telephone for information and you know what you get? An answering service.

**OEM:** Remember what I said? 12 GHz. This whole thing is nothing but a test for 12 GHz, a fire drill.

**Dealer:** Well, it isn't working. The whole outfit is dis-organized!

**OEM:** They think it's working. When or if they really want into the 4 GHz market, they'll move on us. But their whole vision is on 12 GHz. Right now, 4 GHz is just a training exercise. When 12 comes along and it gets serious, they will pop in with top to bottom professionals. Right now they are running loose and sloppy and that lets the crud settle to the bottom and if there is any 'cream' in the pot in the way of professional people on board, they will rise to the top. The money they are losing right now is nothing; not when it is compared to the money up ahead on 12 GHz. They can afford to make a lot of mistakes along the way because when they finally have it together and right, then the big bucks will be there.

**Dealer:** I hear you, and it will be interesting to see what happens to the 'little guys' when all of this happens.

**OEM:** They expect them to fade away, quit, or stand by to be gobbled up . . .

**Engineer:** Don't be so sure about that.

**Dealer:** At 12 GHz, will they need 'little guys' like me; dealers who have developed a working knowledge of 4 GHz terminals and terminal basics?

**Engineer:** They'll do whatever their marketing plan tells them to do. But I wouldn't count on being a part of what they are planning, at 12.

**OEM:** Frankly, they don't know yet. That's what the 4 GHz training exercise is really all about. They are collecting data and testing their own systems and personnel. When the time is right, they'll review everything that has happened and everything they have learned, and then make a decision based upon the facts and circumstances at that time.

## IF YOU ARE A TVRO DEALER/ A TVRO DISTRIBUTOR/ A TVRO MANUFACTURER . . .

**CJR is NOT for everyone.** It is the mid-month (AIRmailed the 15th of each month) dealer/distributor newsletter strictly for TVRO equipment suppliers. **CJR** provides the perfect 'mid-month-filler' between **CSD** and other publications which are mailed to you on the first of each month. **PLUS** — CJR turns around from final 'copy' to the U.S. postal system in just three days time; that's fast! **AND** — that guarantees you the latest news, marketing trends, pricing conditions, and product news (plus a feature or two each issue) fast enough that you'll have it in your hands soon enough to really **PROFIT** from the information.

\_\_\_\_\_ **ENCLOSED my check for \$35** for a 12 month subscription to **CJR**. I reside within the USA or where US 'zip codes' apply. **Oh Yes**, attached is my business card/letter head as **proof** that I am in the equipment business and that I qualify for a subscription.

\_\_\_\_\_ **ENCLOSED is my check in US funds for \$45** for a 12 month subscription to **CJR**. I reside OUTside of the USA/U.S. zip code area. Attached is my business card/letter head as proof that I am in the equipment business and that I qualify for a subscription.

NAME \_\_\_\_\_

NAME OF COMPANY \_\_\_\_\_

Address \_\_\_\_\_

Town/City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

Country \_\_\_\_\_

Send subscription, payment to:

CJR/Cooper James Report  
P.O. Box 100858  
Fort Lauderdale, FL 33310

## SERVICE: WHERE TO START WHEN IT BREAKS

### WHERE To Start?

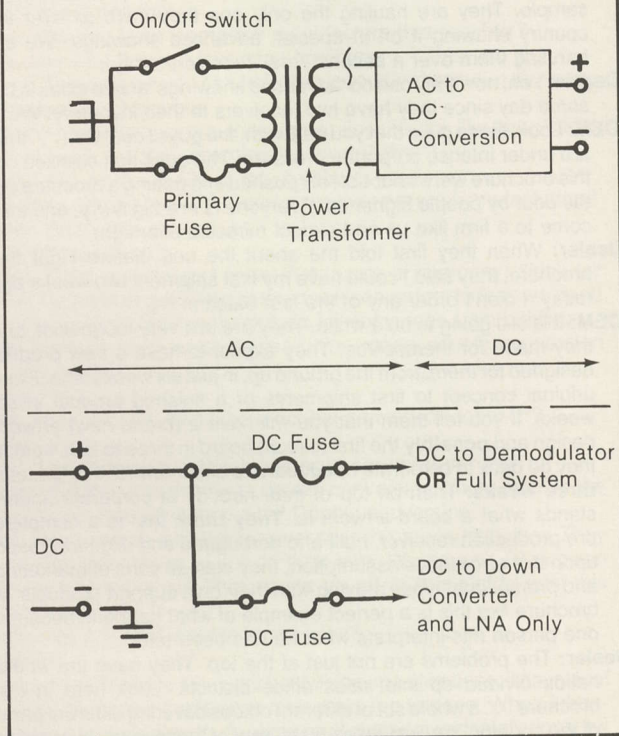
"My system has quit". Not a pleasant message. You had better things to do today than run 45 miles out in the country to see what could have happened to Farmer Brown's TVRO. You are particularly nervous because this is a new brand of system to you, and your own experience with equipment is not that solid yet. Maybe you will get lucky and find a blown fuse!

Until a dealer has worked again and again with a particular system lash-up, and experienced system problems (and solved those problems) there is always the fear of the 'unknown'. What extra-special 'twist' has **this** manufacturer built into his system? What do you mean they don't have a fuse between the receiver and the LNA?

A total system failure should always begin analysis at the powering end of the system. This strongly suggests that power to some or all of the system has quit. Perhaps the power quit because a fuse 'did blow'. Or, perhaps the power is present to operate part of the system, but not the balance. Let's start at the top.

- 1) **Power.** All TVRO systems plug into a standard 110/120 volt AC (VAC) outlet. That's common household current. But none of the system (the receiver/demodulator proper, the down converter, or the LNA) actually operate on 110 VAC; they operate on some far lower, DC (direct current) voltage. Most of the voltages that you will be looking for, or measuring, are in the 12 to 25 volt region. And that's DC; just like you get from a car battery.
- 2) **Inside** of the receiver is a 'power supply'. The power supply has a relatively simple chore; it takes in the 110/120 VAC and it turns that alternating current source into a direct current source. And because the TVRO electronics don't require such a high voltage (such as 110/120 volts), the power supply also lowers or reduces the 'supply voltage' to a lower level.
- 3) **Most** TVRO receivers contain a pair of fuses; devices that 'blow' or quit when some predetermined 'unsafe amount of current' passes through them. The first fuse (often 1/4 to 1 amp) is on the 110/120 VAC line. It is actually part of the AC plug circuit, usually connected in one side of the AC plug line and separated from the line by the power on and off switch that is the master power switch for the receiver. The second fuse is located on the 'DC' or operating voltage side of the power supply. It is typically in the plus or positive side of the DC supply, just after the supply proper and before all of the equipment that feeds off of the supply.
- 4) There is another approach to 'protecting' the power supply. The fuse is really a protection device; it is rated at some 'safe current' value (such as 1/2 amp) because that is a 'safe margin' above the normal operating current of the DC supply. You can visualize the DC power (12 to 25 volts typically) as a water supply. When too much water flows through the pipe (electrical current flows through the wire), an automatic valve (the fuse) stops the flow of water (electricity). The receiver designer knows exactly how much current will be used from the power supply to operate the receiver, the down converter and the

### TYPICAL TVRO RECEIVER POWERING



LNA. He adds to this known amount (measured in amps or parts of an amp called milliamps) some 'safety factor' to handle brief overloads. Then he selects a fuse that is equal to that amount of 'safe current'. Any more current than that flowing through the circuit/system, and the fuse heats up and 'snaps'. That's not a nuisance; that's to keep your system from developing a fault (i.e. short), and taking so much current out of the power supply that the power supply literally goes up in a puff of smoke. Better to lose a fuse than the whole power supply (or receiver).

As noted, there may be a fuse in the 110/120 VAC 'primary' side of the receiver, to protect the receiver from overloads; there may be a fuse in the 12-25 VDC side to protect the power supply proper. And, there could be a fuse in the line that carries power out of the receiver/demodulator proper, outdoors, to the down converter and the LNA. The two fuses (if there are two) may look identical, but chances are they are not rated the same. The primary side fuse, the one that goes into the 110/120 VAC line, is going to have a larger current rating (i.e. carry a bigger load) than the fuse in the DC (secondary) side of the line. Why is this so?

**All of the current** for the full receiver, the sum of the demodulator, the down converter, the LNA and the dial lights and fancy do-dads, **goes through the primary side fuse.** On the other hand, the fuse on the secondary side may only protect the portion of the DC supply that goes outdoors to the down converter and LNA. Thus you may find a '1 amp' fuse on the primary side, and a '1/4th amp' fuse on the secondary side. Don't be tempted to 'elevate' the value of the secondary side fuse.

OK, so you didn't have an 'exact replacement' 1/4th amp fuse handy and you stuck in what you did have handy. 1 Amp. Now, what might happen to you having done this terrible deed?

First of all, you cannot be sure why the fuse went south in the first place. It could blow because the fuse was defective. That doesn't happen often, but it does happen. Maybe the 1/4th amp fuse was really a 3/16th amp fuse and it got mis-marked or was defective in manufacture. That could cause it to blow when nothing was wrong.

# Channel Master®...



## IT'S EASIER FOR YOU TO SELL TO PEOPLE THAT KNOW US.

They're the people in suburban and rural markets that already depend on Channel Master high-gain TV antennas and amplifiers for the best reception that they can get. When you offer Channel Master earth stations to your prospects, the chances are very good that they've heard of us and our reputation for high-quality reception.

They're the people in over 8 million American homes with a Channel Master antenna rotor control box in their living room. They're some of the users of the 21 million Channel Master outdoor TV antennas sold over the last 34 years. **Some of our competitor's names may be well known to us in the satellite "trade" but to the average consumer they mean absolutely nothing.**

Over the past 34 years, the Channel Master name has become synonymous with superior TV reception, recognized again and again by leading consumer testing magazines. You clearly benefit from this reputation, as well as by having a single, brand-recognized name to sell...not separate names for the dish, receiver, LNA, polarizer, dish controller and stereo processor. And not separate guarantees or service centers, either.

Check it out. And let our Distributors show you satellite TV the way it's supposed to be. They're ready with inventory and technical assistance to make your life easier in this hectic new industry.

Channel Master....dedicated to better reception since 1949.

 **CHANNEL MASTER**  
**SATELLITE RECEPTION EQUIPMENT**  
DIVISION OF AVNET, INC., ELLENVILLE, N.Y. 12428



We need new dealers and distributors for selected markets who can specialize in this new and growing industry. Please write or call Don Berg or Phyllis Fisher for immediate consideration. (914) 647-5000.



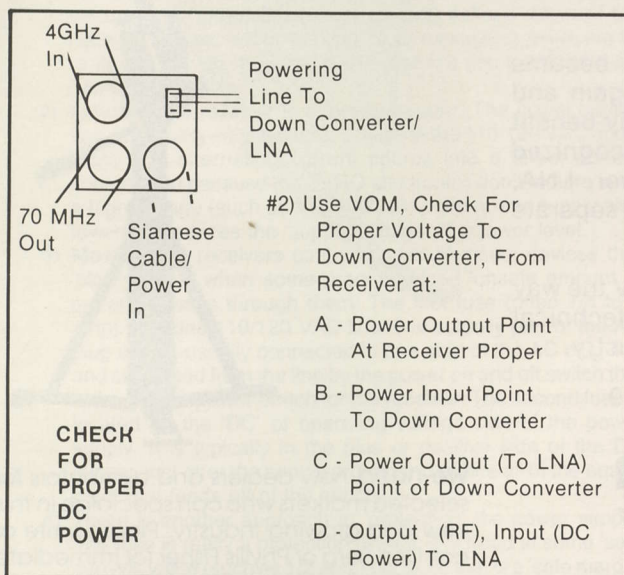
Or, maybe the fuse was a 1/4th amp fuse but nothing was really wrong. It blew because of a sudden 'voltage spike' or 'transient' on the AC side of the line, and that extra amount of voltage on the primary side caused the DC supply to put out a sudden increased amount of voltage on the secondary side. The fuse 'blew' because that is its job when something like that happens.

Or, most likely of all, the fuse blew because something in the down converter / LNA side of the line **was drawing too much current**. More than 1/4th amp of current to be exact. Now, what happens when you 'substitute' a 1 amp fuse for the factory recommended 1/4th amp fuse?

Somebody sat down, when they designed the receiver, and they selected parts for the power supply and the down converter based upon the assumption that no more than 1/4th amp of direct current was ever going to pass through those parts. Now you come along and upgrade the fuse to 1 amp. If some part in the system has gone bad (or if you got some moisture inside of the coax going to your LNA, from your down converter, for example), and you now allow the system to draw 1 amp of current before the fuse (protection) blows, you have just exposed all sorts of parts to 4 times as much current as they were safely rated to handle.

The first thing you are likely to do with such a fuse substitution is 'melt' some part inside of the down converter; if there is a real 'short' on the line someplace. Meanwhile, as this is happening out at the down converter, the AC to DC power supply is sitting there grunting and groaning trying to supply the extra current; more current than it was designed to handle. Some of the power supply parts now get very warm, and one or more of them 'snap'. **Now you have two problems;** the original problem out on the line that caused the normal 1/4th amp fuse to blow, and a busted power supply section that **you blew up** by allowing the 'safety fuse' to be bypassed for a higher value fuse.

All of this can, and does happen, because when some section of a receiver/down converter/LNA develops a 'short' (taken to mean that a part has failed, and 'fused'/'shorted' itself to 'ground'), the capacity of the short is almost infinite. It can 'short circuit to ground' almost any amount of current you can supply to it. Stick a ten amp fuse in the line, in place of the recommended 1/4th amp fuse, and you'll get ten amps going directly to ground; for as long as the power supply can put out such a nasty amount of current.

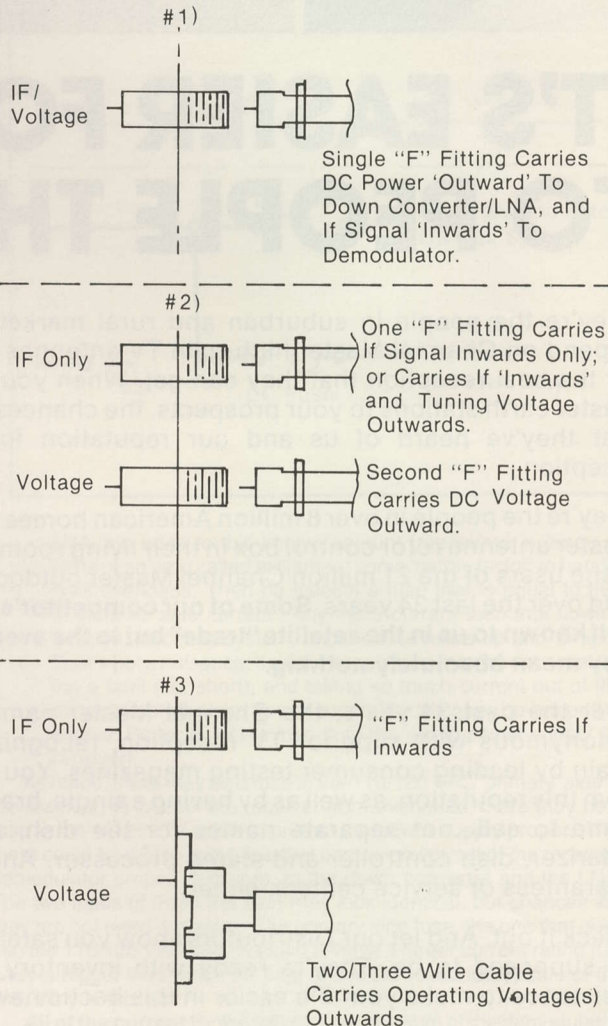


So here you are wondering where to start. First of all, check to see whether we have power where we should have power. The primary side? The fuse should be good and the demodulator will probably indicate it is functioning (lights will glow, meters will move). The secondary side? That's a little tougher.

Receivers have to get power to the down converter/LNA some-

how. They may elect to send the DC operating voltage/power out to the down converter and LNA through the same coaxial cable that connects the down converter to the demodulator. Or, they may send it through a number of extra, secondary (small) wires. Or again, they may send it through a second piece of coaxial cable (so-called Siamese cable because the regular TV signal coax and the power carrying coax are physically joined together in a single outer jacket). In any event, you start by finding how the power gets to the down converter and LNA.

#### DOWN CONVERTER/LNA POWERING OPTIONS



Then test (using a suitable DC meter) whether the proper voltage is at the receiver/demodulator jack. A typical value will be in the 12 (rare)/15 to 25 volt (DC) region. Make sure the meter you are using is in the DC voltage position and touch the black lead of the meter (ground side) to the chassis (metal) ground of the receiver. Touch the red lead of the meter to the positive connection on the receiver. This may be a terminal strip screw marked "+ 24 VDC" or it may be an (F style) chassis mounted coaxial cable fitting (in which case the center pin on the connector is the one that carries the DC voltage).

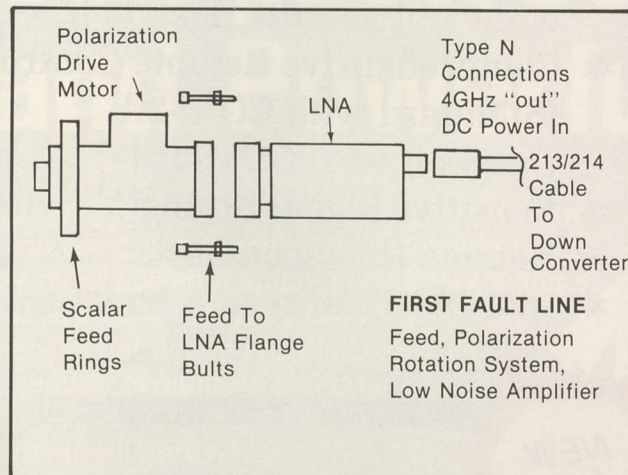
**Voltage OK there?** Reconnect everything back up and we'll go outside to see where the problem is? Ooops. You say there is no sign of a positive voltage going to the down converter and LNA? Time to take the top off of the receiver to look for the DC side fuse. Or maybe the manufacturer put it on the back apron of the receiver, along with

the primary side fuse.

If we are to the fuse **changing** spot, **don't substitute**. That's why you always check your tool kit before you leave the shop; make sure you have a full set of the **proper value fuses** on hand!

Moving outside, logic tells us that if we had power coming out of the receiver and heading for the down converter, we should be able to take our test meter and check for the same voltage (or a very slightly lower voltage) where that same cable plugs into the down converter. Check there first.

No voltage? Check again. The only thing between that check point and the demodulator, where you had voltage, is cable. If you lost it **between** the two points, the problem is **in the cable**.



If we have voltage to the down converter, we should now unscrew the RG-213/214 N type connector that connects the **input of the down converter to the LNA**. This assumes you are 'cable powering' the LNA, through the 213/214 cable. Now be very careful. Attach the black/negative lead of the DC voltage meter to the ground side of the down converter. That's any metal part of the outside of the chassis. Now the careful part. The red probe, just the metal tip, should very carefully touch the **center pin** on the chassis mounted type N connector on the down converter. And you should read a voltage here.

The voltage to the down converter powers the down converter. It **also goes through** the down converter and flows **into the LNA** to power it. If the down converter has had a powering problem, internally, you may have voltage **to** the down converter but **no voltage passes through** the down converter to the LNA. An LNA without voltage will not work!

If the down converter had voltage, but the input to the down converter, where power comes 'out' to power the LNA, has no voltage, your problem could be one of two places:

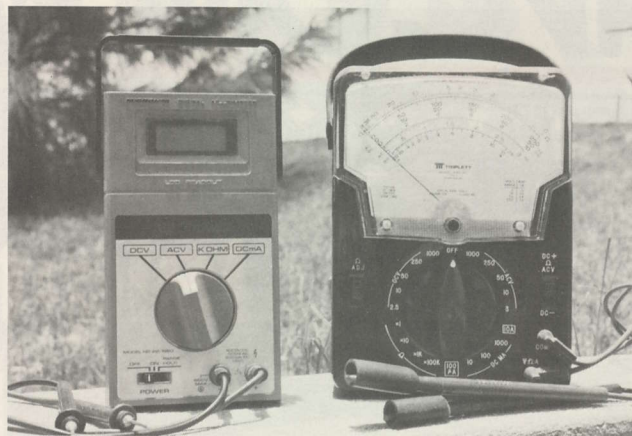
- 1) Inside of the down converter a part has 'snapped'; or,
- 2) Some clever engineer has placed a **separate fuse** inside of the down converter to protect just the LNA.

If you are not certain about the design of your down converter, go back and check the instruction manual. As a last resort, carefully take the down converter apart and see if you can find a fuse. If you don't find one there, and you are baffled by all of the funny wires and parts, stop right there and box it up.

However, let us assume that we have power coming out of the down converter 'input' and we feel quite certain the LNA is getting power. Let's not take anything for granted yet.

Between the down converter and the LNA we have that 'passive' piece of coaxial cable; on both ends we have a type N connector, and in between we have some nomenclature such as RG-213, RG-214 or even (shudder) RG-8.

Get yourself to the LNA and carefully unscrew the type N connector that connects **into** the LNA. Now get the black/ground side of the meter to the outer/shield part of the connector and then **very-very carefully** touch the red/positive lead of the meter to that tiny **center**



**VOM/ Volt OhmMeter** is handy test device that allows you to quickly check the DC voltage from your receiver/down converter/LNA system. And, it also helps you check for 'continuity' of a cable line (see text). Radio Shack has them. Digital (left) and analog (right) types are shown.

**pin** inside of the type N connector.

Be careful here.

There is a metal ring that surrounds the tiny center pin-tip. That ring is ground! **Don't allow** the red meter lead probe to touch **both** the center pin **AND** the circular shield around the tip at the same time. Instant short circuit and instant fuse blowing time.

Humm. Voltage here also? That tells us that the LNA is getting power. Now, why won't this darn thing work!

Remember that we said the **first** thing we had to do was to check out the system powering. We have now done this, and unless we found YOUR problem someplace along the way, we still have a defective terminal. Where to next?

This might be a good time to step back and analyze what the most common defect is after power. Cabling is the answer.

Now, we know that certain segments of the cable are OK. There was power from the demodulator all the way to the down converter and the LNA. That tells us that any cable connecting the three together is good. And this eliminates the RG-213/4 between the down converter and the LNA. In some receiver designs, it would also eliminate the RG-59/U connecting the down converter to the demodulator/receiver. But not all.

**Not all** receivers send DC operating voltage for the down converter and LNA through the **same coaxial cable** as carries the 70 MHz signal back indoors from the down converter. In fact, most now days use a separate piece of RG-59/U ('Siamese' or separate), **or**, some other power carrying wire between the two. This could still leave the RG-59/U between the down converter and the demodulator/receiver if it is used for **nothing but** carrying the IF signal indoors.

Now, how do we check that?

First we take both ends loose and inspect them. An 'F' fitting is difficult to screw up, but it can be done. One of the most common mistakes is to leave a tiny piece of the braided (outer shield) in where it can touch the inside copper center conductor. That will short the two 'sides' together and even if the RG-59/U is not carrying any DC power, that short (both sides touching) will ruin the 70 MHz IF signal trip inside.

OK here? Next we have to figure out a way to test the RG-59 for 'continuity'. That's a fancy word for determining if the cable is one whole piece, unbroken, from the down converter F fitting inside to the back of the receiver.

If you have your trusty VOM (volt ohmmeter) handy, there are two quick ways to do this. One involves pulling a short 'alligator clip lead' out of your tool bag and the other involves having a 9 volt 'transistor' battery handy. One at a time.

SERVICE/ continues page 14

# AVCOM® *NEW Product Update*

NEW  
from  
AVCOM

Toll-free  
OrderLine

AVCOM • 500 Research Road • Richmond, VA 23236 • 804-794-2500



COM-2A

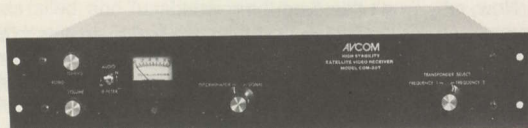
NEW  
from  
AVCOM

- \* Attractive Styling
- \* Scantune
- \* Tunable Audio with wide and narrow IF switch
- \* Comprehensive Remote Control (Standard with COM-2A, Optional with COM-2B)
- \* Sensitive Signal Strength Meter
- \* Remote Downconverter
- \* AVCOM Quality at a Low Cost



COM-2B

NEW  
from  
AVCOM

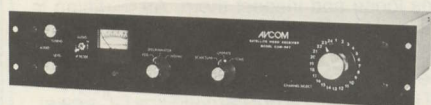


COM-20T

NEW  
from  
AVCOM

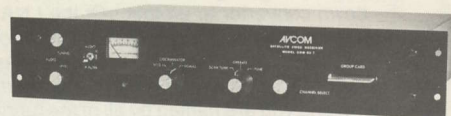
AVCOM's COM-20T High Stability Satellite Video Receiver is the answer to your need for a highly stable and reliable receiver for cable, private cable, radio stations, TV stations, BIZNET, News, Weather & Music Services, and other dedicated applications. The COM-20T can be factory or field adjusted to a particular transponder and will

remain on frequency without attention. The COM-20T is normally supplied with a remote downconverter and tunable audio. Optional configurations include fixed-tuned audio, internal downconverter, and downconverter switching for multi-channel capability. Styling matches AVCOM's popular series of rack mount receivers.



COM-66T

The COM-60 Series  
for  
Cost-Effective  
Multi-Channel  
Installations



COM-65T

- \* Commercial Quality
- \* Compatible with SA's 6650 system
- \* Rack Mount, standard
- \* Double Conversion
- \* Flexible Downconverter (Use any degree and brand LNA)
- \* High Stability

NEW!

AVCOM's Toll-free OrderLine 800-446-2500 (Orders Only)

All other inquiries phone 804-794-2500.

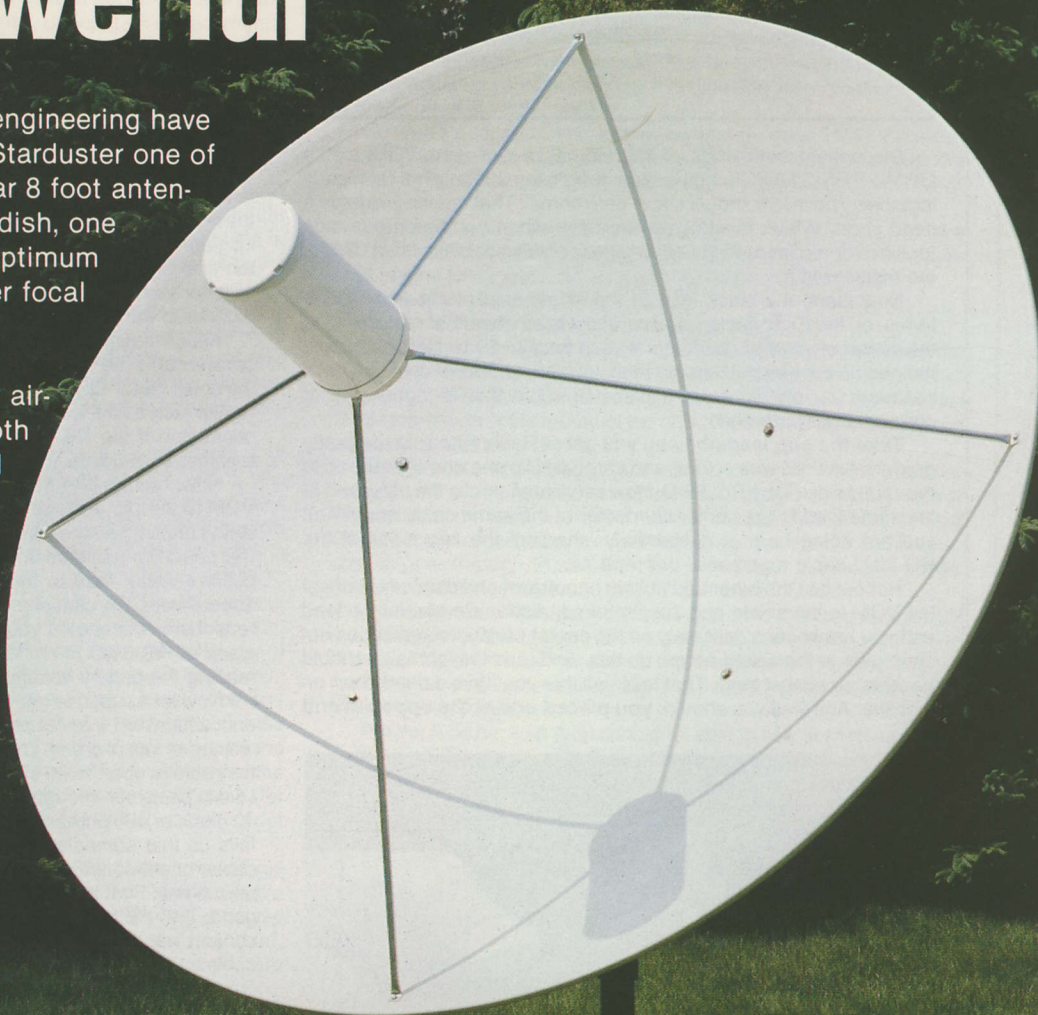
# STARDUSTER

## Compact, Complete and Powerful

Common sense and good engineering have been combined to make the Starduster one of the most powerful and popular 8 foot antennas available today. Its deep dish, one piece construction provides optimum reception by utilizing a shorter focal point, thus reducing terrestrial interference.

Constructed of high quality aircraft-type aluminum, its smooth satin finish will deliver crystal clear reception from all orbiting satellites, along with many audio services.

The Starduster is mounted on a 360° swivel polar-mount which is constructed of heavy gauge steel. The polarmount is coated with a ceramic-type paint for years of maintenance-free service.



*For more information on becoming a Starduster distributor or dealer, please write or call today.*

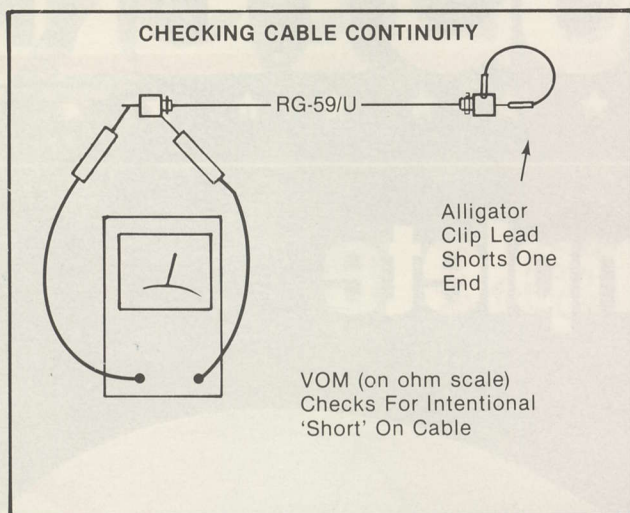


**\$499.**

QUANTITY PRICING AVAILABLE

ONE ECHO PLAZA • CEDARBURG, WI 53012 • 414-375-1000 • TOLL FREE: 800-558-5582 • TLX: 26886/ANS BK 26886 GRAF • CABLE: DELTA SAT

SERVICE/ continued from page 11

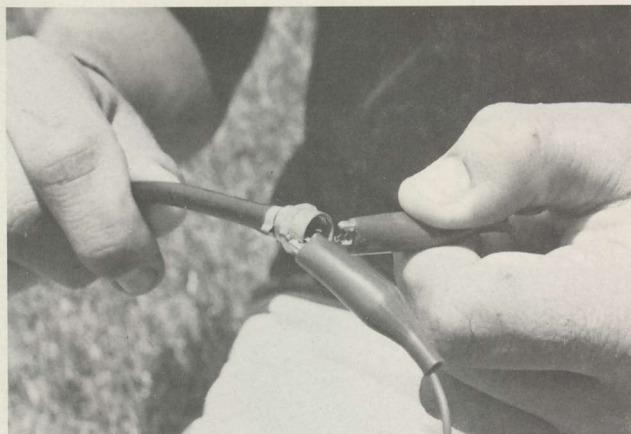


Disconnect both ends of the RG-59/U. Set your VOM to the OHMS/RESISTANCE scale and touch the black and red leads together. The meter should show 'zero ohms'. That means you have a dead short. Which is what you do have when you touch one side (positive or red lead) to the other side (negative or black lead). Good, the meter works.

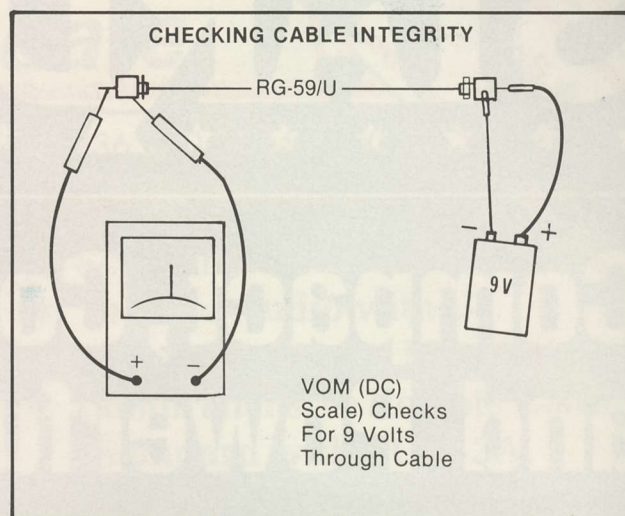
Now place the black lead to the shield side of the coax (outer ferrule on the F connector) and carefully touch the other meter lead to the center pin/center conductor wire in the RG-59/U. Nothing should happen on the meter. It should read 'infinity', or "lots of ohms". That's because you should have a piece of cable that is 'open', or not connected, at both ends.

**Take the clip lead** (the one you got at Radio Shack in the pretty green/yellow/red wire colors) and carefully clip one end of one lead to the shield side of the RG-59/U. Now very carefully clip the other end of the same lead to the center conductor of the same cable end. What you are doing here is deliberately 'shorting' the two sides of the RG-59/U cable together at one end.

Hotfoot it to the other end (inside or outside) and carefully connect the VOM to the shield and the center conductor. Be careful the lead end you are holding delicately on the center conductor lead does not short over to the shield as you do this. And read the 'ohms'. It should be 'zero' or almost zero. That tells you that you have a dead short on that line. And well you should; **you placed one at the opposite end**



**CLIP LEAD** allows you to check the intactness (continuity) of a coax line by deliberately 'shorting' one end and then measuring the presence of the short at the opposite end of the line.



#### with the clip lead!

Or maybe you would prefer to use a 9 volt transistor battery to test for 'continuity'. Here's how we do this. Have a battery already made up in your tool kit. Take a clip lead and solder or attach a bare wire end to the positive terminal on the battery, leaving free the other end with the alligator jaws clip on it. Do the same thing with the opposite (+ or -) terminal on the battery. Now you have a handy way, using the two alligator-jaw clip leads, to attach the 9 volt battery to something exterior to the battery.

Attach the ground (negative) side to the shield portion of the coaxial cable (be sure you are connected to the shield **and not just** to the small metal 'O' ring that may be insulated from the shield with the rubber jacket on the cable). Attach the positive clip lead to the center connector of the RG-59/U. Be careful that you don't short the two together or you'll have a fried battery in a hurry!

Now, hotfoot it to the opposite end of the cable and switch your VOM to the **DC voltage scale**. Clip the black test meter lead to the shield (again, be sure you are onto the shield and not the metal O ring that could be insulated from the shield with the rubber jacket) and the positive meter lead to the center conductor. You should read just about 9 volts. Or, almost precisely the same DC voltage as you would read if your connected your meter to the battery direct. In effect, the piece of RG-59/U is an 'extension' on your clip leads and you are reading the battery voltage 'by remote control'.

Now let's suppose you found the resistance (clip lead across one end; as a short) was not zero ohms; but something higher. Say it was 'infinity' or lots of ohms. That tells you that someplace along the cable, the cable is 'open'. One side (or both sides) of the cable have 'broken'. Like in being cut through. Or suppose the meter reads something like 40 ohms or 400 ohms. Not zero, certainly, and not infinity either. That tells us that someplace along the coax run we have a 'squashed' cable; one that is trying to be shorted out, but not quite making it to zero ohms. First be sure your on purpose short at the far end is still good; that the alligator leads have not jumped off or lost pressure contact with the cable. If that checks out, you have a bad piece of cable.

Or, let's assume the battery check reads not 9 volts (or whatever the battery checked out with when you connected your VOM to it 'direct'), but maybe 6 volts. That's because someplace along the way we have a 'load' on the battery; something is taking current out of the battery. In theory, only the meter at the very end should be doing that and the meter draws no real current. Something along the way (like a partially broken cable, a splice fitting that has gotten water in it and caused a partial ["high impedance"] short) is soaking up the current from the battery. And drawing the battery voltage down. Again, that tells you that you have a bad piece of cable or a bad splice along the way.

Installing RG-59/U, especially if you run it between the dish and the receiver inside a protective piece of 1/2 to 1 inch PVC conduit, is

not difficult to do. However, if you have to snake your cable in through the side of a building, under windows, or through some tight places, you can damage the cable (by ripping tears in the outer jacket). A damaged cable can 'leak' moisture into the cable. And moisture, over a period of time, will 'contaminate' the cable. Where the moisture gets inside, it turns that bright copper shield a dull, flakey 'green' color. And that spot becomes a high resistance to the flow of electricity. Bad news to be sure.

There could be worse news. Maybe everything checks out fine up to this point. OK, now where do we look?

There are three obvious possibilities:

- 1) The LNA has quit working;
- 2) The down converter has quit working;
- 3) The demodulator/receiver has quit working.

Original equipment manufacturers tell us that a surprisingly high number of TVRO receivers sent back for repair **do not**, in fact, **have anything wrong with them!** That means that a fair percentage of the dealers are doing 'massive change outs', or field unit replacements, when they encounter problems. The same OEMs advise that after a while, opening receiver boxes on units returned for 'warranty repair', and spending a half hour or more of valuable bench time determining that everything is fine, gets very old. Some have even instituted 'charges' for **non-repair-warranty** work; in other words, if you send back to them a receiver that you are **not certain is bad**, and they find out it is working OK, you can expect to get a repair bill (or the unit back COD for repair time lost). That should tell you that perhaps it is better to spend a few extra minutes **being certain** that a receiver (or LNA or down converter) **is bad** before you box it up and shoot it back to the factory.

Ideally, you could check out each of the three parts before deciding they were bad. Unfortunately, there is no inexpensive test equipment about that will allow you to do this. Only Newton Electronics (\*) offers a full TVRO test set and it is priced up there like one of the old style AVCOM super deluxe receivers; so not many installers can yet justify such an instrument.

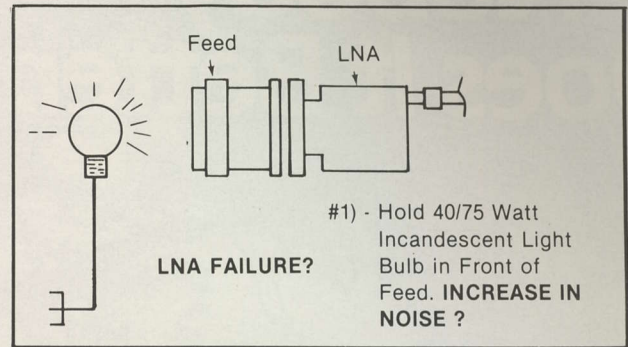
So we resort to 'tricks'; tricks that may work for some people all of the time and for some more people some of the time. The bottom line is that checking a TVRO all the way from antenna surface through the LNA, down converter and to the output of the receiver is not yet a simple task. You have to use some basic logic and deduce what is **probably** wrong; not quite certain you can **prove** what is wrong.

Probably the fastest way to check out the LNA is to replace it. With one you KNOW is good. Many installers keep an older, cheaper, 120 degree unit in their tool kit for just this purpose. They use it a couple of times per week; they know it is good. Not the best, but it does work. Why not just pop open a **new** LNA box and stick a new one on? Perhaps you have never had an LNA that was bad straight out of the box! Now **that** will cost you a half day or more . . . you swap out the suspected LNA with a brand new one and still no people on the screen. Obviously it is not the LNA; right? Uh-huh. Several hours later you will be back trying a third LNA and be madder than hops to find out it was the LNA all along!

There is another way but it does not work all of the time with all systems. It is called an incandescent light bulb. The kind you have over your desk in your shop. On the end of an extension cord you have a light bulb socket. With a helper, you stick the 75 to 100 watt standard, incandescent bulb up in front of the LNA. Tell your client you are checking inside the LNA/feed for 'bugs'(!). Then watch the screen.

The light bulb is (or should be . . . not all are and that's the danger) a terrible 'noise source' at C band (4 GHz). Just holding it in front of the feed should produce a severe case of sparklies on the screen. Obviously you want to keep one hand-selected, 'noisy light bulb', in your tool kit having proven that you have such a light bulb before you get on the job and ask the lady of the house if you can borrow the kitchen light for few minutes!

**No noise** . . . and you know the bulb is a (good!) noise generator at 4 GHz? Doesn't prove much of anything. Why? Because if the down converter was bad, the noisiest light bulb in the world won't make a



dent on the screen.

**Lots of noise?** Now you are getting someplace. That tells you the LNA (and down converter and receiver and all cables) works. So why don't you see people on the screen? Maybe some kid in the neighborhood re-adjusted your elevation jack for you and you are looking a few degrees off of the orbit belt!

So here's a situation where even swapping a good LNA for another good LNA wouldn't lead you in the right direction; you'd suspect something other than the LNA, when it was a mis-adjusted antenna all along.

Let's keep going however and assume we have no noise from the light bulb and we've swapped LNAs also. Still no people on the screen. That begins to suggest our problem is further down the line.

Maybe. Maybe not.

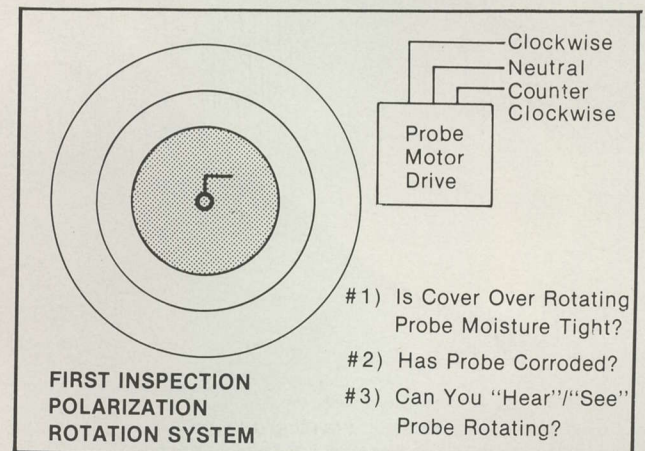
Before we leave the LNA, what about the feed?

Let's start by crawling around the front and looking up **into** the feed. If you have one of the older feeds without a rotation system built in, you should be able to see through the feed to the gold/silver plated 'feed stub' inside the mouth of the LNA. No small critters could have taken up residence in there. Mud dobbers are a no-no.

If your customer's feed is one of the current rotation systems, using a small probe (piece of wire bent into a crazy shape) up inside of the 'mouth' of the feed, we have a more difficult analysis ahead of us. If the mouth of the feed is covered with a piece of cellophane, you may be able to peer through to see the bent wire probe behind the cover. Sometimes they corrode and fall off! Still there? Good.

Just to be sure, let's take the bolts that hold the feed to the front mouth/flange of the LNA off and expose the bare open face of the LNA. Just for fun, check the receiver again with nothing left in place but the LNA; sans scalar feed. Any signs of people? Even weak people? Nope? We'll proceed.

Put the feed back on (you should be able to see 'something' in the way of a WEAK picture **with the scalar feed removed** and if the feed is somehow bad, taking it off even without replacing it with another [new] one will tell you if the feed has gone south).



\* — Newton Electronics, 2218 Old Middlefield Way / Suite 1, Mountain View, Ca. 94043.

We'll continue this in the September issue.

# Nobody Does It Better.

Owning a satellite television system opens up a whole new world of entertainment and educational opportunities for your family. Satellite television means more great Movies, Sports, Specials, Childrens Programs, News, Weather, Business, Education and Adult Programs than you can imagine. Examine a satellite TV program and you'll see what we mean.

The design of our new 2.8 meter model is based on the same proven engineering concepts as our original 3.8 meter antenna. We've refined the shape of the ribs and changed the hub to achieve greater structural integrity and less weight. Our welded Rib & Ring truss system shapes the expanded aluminum mesh into a true parabolic shape. Because wind resistance through the mesh is so much less than a solid dish, and the heat dissipation far greater, a Paraclipse system will remain true in the worst environments. Our ingenious polar mount allows you to change satellites in seconds, simply and accurately.

With the recently enacted  $2^\circ$  satellite spacing, our  $2.1^\circ$  beam width will give clear, sparkle-free reception, while less accurate antennas will become obsolete.

When you shop for a satellite television antenna, take a close look at the equipment and ask lots of questions. Keep in mind that the soonest you'll know the true cost of any system is after you've seen the end of it's service life. Try to separate the facts from the promises and go with a reputable manufacturer.

Only after you know something about the various solutions will you be able to make an intelligent choice about them.

© Copyright 1983 Paradigm Mfg.

## Paraclipse 2.8 meter